

VPDES PERMIT FACT SHEET

This document gives pertinent information concerning the reissuance of the VPDES permit listed below. This permit is being processed as a Major, Municipal permit. The effluent limitations contained in this permit will maintain the Water Quality Standards (WQS) of 9VAC25-260. The proposed discharge will result from the operation of a municipal sewage treatment plant (SIC Code: 4952 - Sewerage Systems). This permit action consists of reissuing the permit with revisions to the permit, as needed, due to changes in applicable laws, guidance, and available technical information.

1. Facility Name and Address:

Lexington-Rockbridge Regional Water Quality Control Facility (WQCF)
PO Box 922
Lexington, VA 24450
Location: 135 Bob Akins Circle, Lexington

2. Permit No. VA0088161; Expiration Date: January 31, 2015

3. Owner: Maury Service Authority
Contact Name: Richard L. Allen
Title: Director Utilities Processing
Telephone No: (540) 463-3566
Email: rallen@lexingtonva.gov

4. Description of Treatment Works Treating Domestic Sewage:

Total Number of Outfalls: 1

Lexington-Rockbridge WQCF primarily receives sewage wastewater generated by residents and businesses in the City of Lexington and surrounding Rockbridge County with the balance of the flow generated by commercial contributors. The treatment units comprising the WQCF are shown in the schematics included in the permit reissuance application.

Average Discharge Flow (November 2011 – October 2014) = 0.98 MGD

Design Average Flow = 3.0 MGD

5. Application Complete Date: November 13, 2014

Permit Writer: Brandon Kiracofe

Date: December 8, 2014

Reviewed By: Dawn Jeffries

Date: December 10, 2014

Public Comment Period: December 24, 2014 to January 23, 2015

6. Receiving Stream Name: Maury River

River Mile: 20.05

Use Impairment: No

Special Standards: pH

Tidal Waters: No

Watershed Name: VAV-135R Middle Maury River/Mill Creek

Basin: James (Upper); Subbasin: N/A

Section: 5; Class: IV

7. Operator License Requirements per 9VAC25-31-200.C: 3.0 MGD Design Flow - Class II
6.0 MGD Design Flow - Class I

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8. Reliability Class per 9VAC25-790: Class II (assigned April 20, 1994)

9. Permit Characterization:

- ☐ Private ☐ Federal ☐ State ☒ POTW ☐ PVOTW
☐ Possible Interstate Effect ☐ Interim Limits in Other Document (attach copy of CSO)

10. Discharge Location Description and Receiving Waters Information: Appendix A

11. Antidegradation (AD) Review & Comments per 9VAC25-260-30:
Tier Designation: Tier 1

The State Water Control Board's WQS include an AD policy. All state surface waters are provided one of three levels of AD protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 waters have water quality that is better than the WQS. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 waters are exceptional waters and are so designated by regulatory amendment. The AD policy prohibits new or expanded discharges into exceptional waters.

The antidegradation review begins with a Tier determination. The Maury River in the immediate vicinity of the discharge was determined to be a Tier 1 water based on the fact that in previous permits the effluent limits for Ammonia-N were set to give the facility the full waste load allocation (WLA) for that parameter in the receiving stream. Antidegradation baselines are not calculated for Tier 1 waters.

12. Site Inspection: Performed by Noel Thomas and Dawn Jeffries on January 5, 2015

13. Effluent Screening and Effluent Limitations: Appendix B

14. Effluent toxicity testing requirements included per 9VAC25-31-220.D: ☒ Yes ☐ No

15. Sewage sludge utilization and disposal options include the following: Appendix C

- Land application of biosolids by the Maury Service Authority under the authority of this permit
- Transport of dewatered sludge to the Rockbridge County Landfill on an emergency basis
- Land application of biosolids by Houff's Feed & Fertilizer Company, Inc. under permit number VPA01581, VPA01566 or VPA01580 on an emergency basis

16. Bases for Special Conditions: Appendix D

17. Material Storage per 9VAC25-31-280.B.2: This permit requires that the facility's O&M Manual include information to address the management of wastes, fluids, and pollutants which may be present at the facility, to avoid unauthorized discharge of such materials.

18. Antibacksliding Review per 9VAC25-31-220.L: This permit complies with the antibacksliding provisions of the VPDES Permit Regulation.

19. Impaired Use Status Evaluation per 9VAC25-31-220.D: The Maury River in the vicinity of the discharge is listed as impaired for bacteria. A Total Daily Maximum Load (TMDL) addressing the bacteria impairment includes the following WLA for this discharge:

E. coli: 5.22×10^{12} cfu/yr (based on a design flow of 3.0 MGD and a concentration of 126 cfu/100 mL)

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A TMDL addressing the benthic impairment has not been prepared. The permit contains a re-opener condition that may allow the permit limits to be modified, in compliance with section 303(d)(4) of the Act once a TMDL is approved.

20. Regulation of Users per 9VAC25-31-280.B.9: N/A – This facility is owned by a municipality.

21. Stormwater Management per 9VAC25-31-120: Application Required? ☒ Yes ☐ No

Because the Lexington Rockbridge Regional WQCF has a design flow ≥ 1.0 MGD, a stormwater application is required.

3.0 MGD Flow Tier: A No Exposure Certification (NEC) for Exclusion from VPDES Storm Water Permitting was submitted on July 3, 2014 with the permit reissuance application. The NEC was sent to DEQ inspectors for review and concurrence on July 3, 2014. No stormwater requirements have been included in the permit. The NEC for the existing 3.0 MGD facility will be approved with the reissuance of the permit. A NEC must be submitted once every five years to the Department. If conditions change at the facility, and any industrial materials or activities become exposed to stormwater, coverage under a VPDES permit must be obtained prior to any point source discharge of stormwater from the facility.

6.0 MGD Flow Tier: The permittee has requested effluent limitations for a proposed expansion that would require a stormwater application be submitted. A special condition is included in the permit that describes the application process.

22. Compliance Schedule per 9VAC25-31-250: There are no compliance schedules included in the reissued permit.

23. Variances/Alternative Limits or Conditions per 9VAC25-31-280.B, 100.K, and 100.N: The applicant requested a waiver for sampling fecal coliform at Outfall 001 and all parameters at Outfall 002 (Bypass of Cascade Aeration). Approval of this waiver request was received from EPA.

24. Financial Assurance Applicability per 9VAC25-650-10: N/A – This facility is owned by a municipality.

25. Virginia Environmental Excellence Program (VEEP) Evaluation per § 10.1-1187.1-7: At the time of this reissuance, is this facility considered by DEQ to be a participant in the Virginia Environmental Excellence Program in good standing at either the Exemplary Environmental Enterprise (E3) level or the Extraordinary Environmental Enterprise (E4) level? ☐ Yes ☒ No

26. Nutrient Trading Regulation per 9VAC25-820: See Appendix B
General Permit Required: ☒ Yes ☐ No

27. Nutrient monitoring included per Guidance Memo No. 14-2011: ☐ Yes ☒ No

This facility is a Significant Discharger as defined in the Nutrient Trading Watershed General Permit (WGP) Regulation 9 VAC 25-820 and is actively monitoring and reporting under the WGP. This permit does not include any outfalls that discharge solely stormwater exposed to industrial activity.

28. Threatened and Endangered (T&E) Species Screening per 9VAC25-260-20 B.8: Because this is not an issuance or reissuance that allows increased discharge flows, T&E screening is not automatically required. However, in accordance with the VPDES Memorandum of Understanding, T&E screening was coordinated on May 13, 2014 through USFWS based upon request. Comments were received from USFWS and are included in the permit processing file. Comments were considered in the drafting of the permit and were also forwarded to the permittee.

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29. Public Notice Information per 9VAC25-31-280.B: All pertinent information is on file, and may be inspected and copied by contacting Brandon Kiracofe at: DEQ-Valley Regional Office, P.O. Box 3000, Harrisonburg, Virginia 22801, Telephone No. (540) 574-7892, brandon.kiracofe@deq.virginia.gov.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given.

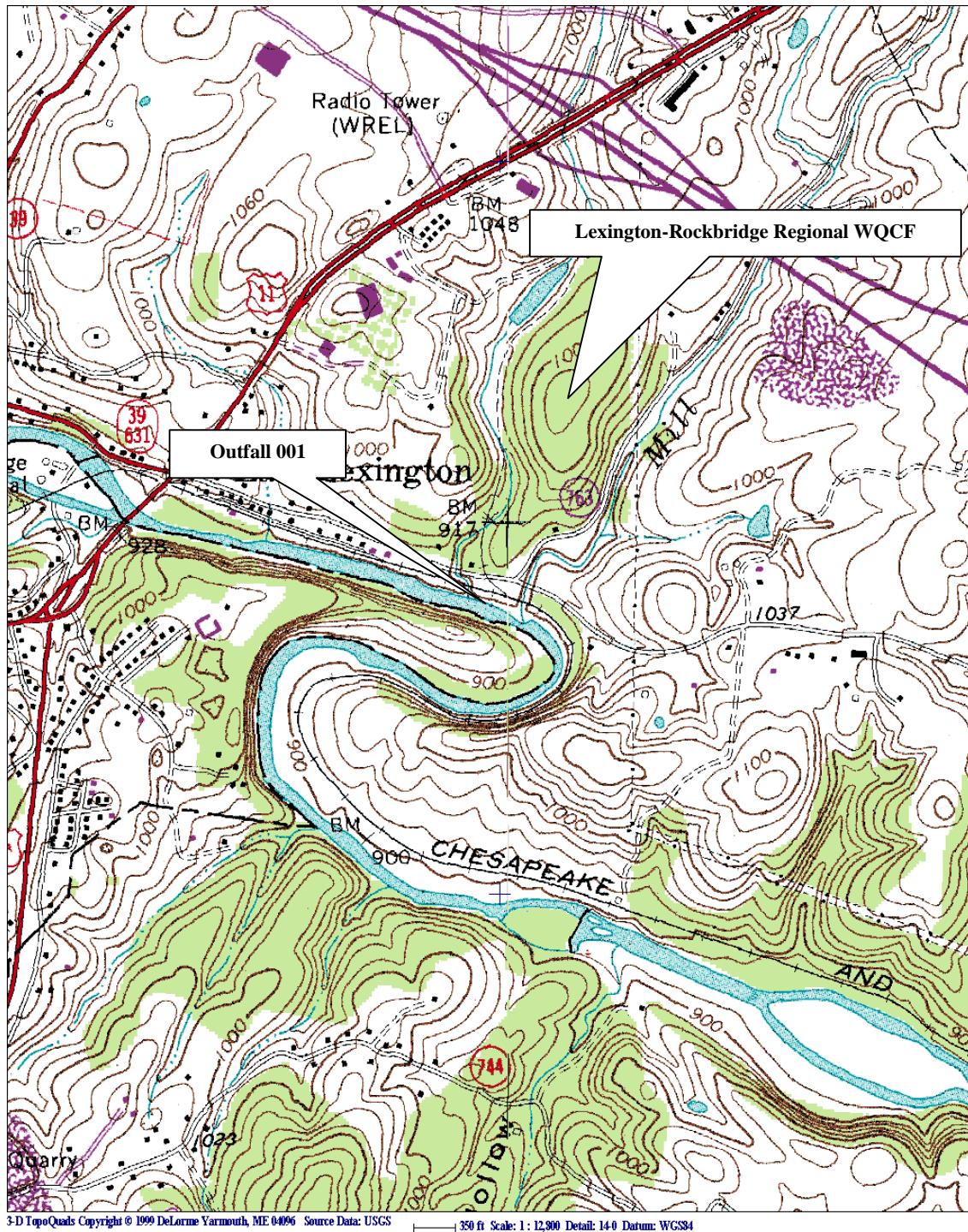
30. Historical Record:

- The permit for this facility was issued on April 20, 1994, with a design flow of 4.0 MGD.
- The permit was modified on November 9, 1995, to provide requirements for design flows of 3.0 MGD and 6.0 MGD, with a permitted flow tier of 2.0 MGD in lieu of the 4.0 MGD design flow tier specified in the original permit.
- A Certificate to Operate (CTO) was issued for the wastewater treatment facility in March 1999.
- The permit was reissued on April 20, 1999 to continue the requirements for design flows of 3.0 MGD and 6.0 MGD, with a permitted flow tier of 2.0 MGD.
- A CTO for the sludge handling and storage facilities was issued in August 1999.
- The facility began discharging on March 23, 1999.
- The permit was reissued on February 2, 2005 with design flow tiers of 3.0 MGD and 6.0 MGD, with a permitted flow tier of 2.0 MGD. The Sludge Management Plan approved with the permit included 62 fields for a total of 540.7 net acres.
- The permit was modified on June 30, 2005 to eliminate the 2.0 MGD permitted flow tier and to eliminate the requirement for an E. coli disinfection demonstration.
- In a letter dated May 3, 2007, DEQ approved the addition of 5 new land application sites compromising 41.1 acres.
- In a letter dated January 20, 2009, DEQ approved the addition of 4 new land application sites compromising 45.2 acres.
- The permit was reissued on February 1, 2010 with design flow tiers of 3.0 MGD and 6.0 MGD. The Sludge Management Plan approved with the permit included 62 fields consisting of 659.5 gross acres.
- A CTO for the upgraded 3.0 MGD facility was issued on December 15, 2011.

APPENDIX A

DISCHARGE LOCATION AND RECEIVING WATERS INFORMATION

Lexington-Rockbridge Regional WQCF discharges to the Maury River in Rockbridge County. The topographic map below shows the location of the treatment facility and Outfall 001.



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PLANNING INFORMATION

Relevant points of interest within the watershed and in the vicinity of the discharge are shown on the Water Quality Assessments Review table below.

WATER QUALITY ASSESSMENTS REVIEW						
UPPER JAMES RIVER BASIN						
7/7/2014						
IMPAIRED SEGMENTS						
SEGMENT ID	STREAM	SEGMENT START	SEGMENT END	SEGMENT LENGTH	PARAMETER	
I33R-03-BAC	Kerrs Creek	11.57	0.00	11.57	E-coli	
I35R-02-BAC	Mill Creek	8.59	0.00	8.59	Fecal Coliform, E-coli	
I35R-03-BAC	Woods Creek	5.71	0.00	5.71	E-coli	
I35R-03-BEN	Woods Creek	5.71	0.00	5.71	Benthic	
I36R-05-BEN	Marl Creek	6.87	0.00	6.87	Benthics	
I37R-02-PCB	Maury River	17.42	0.00	17.46	PCB in Fish Tissue	
PERMITS						
PERMIT	FACILITY	STREAM	RIVER MILE	LAT	LONG	WBID
VA0088161	Lexington-Rockbridge Regional WQCF	Maury River	20.05	374722	0792500	VAV-I35R
VA0002771	Modine Manufacturing Co - Buena Vista	Indian Gap Run	0.20	374337	0792134	VAV-I37R
VA0004791	Bontex Inc	Maury River	12.82	374433	0792146	VAV-I37R
VA0020991	Buena Vista STP	Maury River	11.43	374337	0792149	VAV-I37R
VA0050989	Maury Service Authority WTP	Sink Hole-Maury River l	0.37	374803	0792718	VAV-I35R
MONITORING STATIONS						
STREAM	NAME	RIVER MILE	RECORD	LAT	LONG	
Buffalo Creek	2-BLD009.33	9.33	6/20/01	374314	0792938	
Maury River	2-MRY023.42	23.42	6/10/98	374845	0792656	
Maury River	2-MRY020.16	20.16	7/17/06	374723	0792459	
Maury River	2-MRY016.01	16.01	6/6/74	374608	0792301	
Maury River	2-MRY016.62	16.62	12/21/01	374619	0792301	
Maury River	2-MRY020.82	20.82	6/20/01	374733	0792546	
Maury River	2-MRY011.23	11.23	1/16/69	374335	0792202	
Maury River	2-MRY011.26	11.26	5/14/92	374335	0792159	
Maury River	2-MRY011.86	11.86	7/1/97	374357	0792133	
Maury River	2-MRY012.63	12.63	5/14/92	374434	0792150	
Maury River	2-MRY014.78	14.78	4/9/79	374508	0792332	
Maury River	3-MRY013.37	13.37		374448	0792225	
Maury River	2-MRY029.32	29.32	7/11/05	375101	0792521	
Mill Creek	2-MIS000.04	0.04	7/1/91	374724	0792456	
Mill Creek	2-MIS000.09	0.09	6/27/05	374727	0792456	
Mill Creek	2-MIS005.00	5	6/27/05	375028	0792221	
Mill Creek	2-MIS005.94	5.94	6/27/05	375100	0792150	
Mill Creek	2-MIS006.76	6.76	6/27/05	375112	0792106	
Mill Creek	2-MIS006.88	6.88	6/27/05	375116	0792102	
Kerrs Creek	2-KRR001.54	1.54	7/1/91	374945	0792643	
South River	2-STH000.21	0.21	7/1/91	374614	0792252	
Woods Creek	2-WDS002.08	2.08	5/5/03	374646	0792722	
Woods Creek	2-WDS002.17	2.17	5/5/03	374642	0792724	
Buffalo Creek	2-BLD012.09	12.09	10/15/98	374358	0792929	
Marl Creek	2-MRL002.62	2.62	10/29/01	374843	0792116	
Maury River	2-MRY010.96	10.96		374460	0792246	
South River	2ASTH000.50	0.50	5/14/02	374622	0792241	
Union Creek	2-UNN003.77	3.77		374714	0792939	
Whistle Creek	2-WST002.60	2.60	10/19/93	374908	0792927	
Woods Creek	2-WDS000.12	0.12	5/7/07	374731	0792547	
PUBLIC WATER SUPPLY INTAKES						
OWNER	STREAM	RIVER MILE				
None						
WATER QUALITY MANAGEMENT PLANNING REGULATION						
Is this discharge addressed in the WQMP regulation? Yes						
If Yes, what effluent limitations or restrictions does the WQMP regulation impose on this discharge?						
PARAMETER	ALLOCATION					
Nutrients under the Watershed General Permit						
WATERSHED NAME						
VAV-I35R Middle Maury River/Mill Creek						

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FLOW FREQUENCY DETERMINATION

The USGS operates a continuous record stream flow gage on the Maury River near Buena Vista, VA (02024000), which was established in 1938. This gage is about 4.6 downstream of the subject discharge point. In addition, the South River discharges to the Maury River between the discharge point and the Maury River gage near Buena Vista. Thirteen years (1949-1962) of flow information exists for the gage on the South River near Riverside, VA (02023500). The subject discharge, which impacts the Maury River gage near Buena Vista, has an average flow of 0.97 MGD (1.50 cfs). To adequately calculate the critical flows at the discharge point it will be necessary to subtract the discharge flows and the South River flows from the reference gage and adjusting them by proportional drainage areas. The drainage area for the Maury River gage has been adjusted to exclude the drainage area for the South River.

The data for the Maury River gage, South River gage, and the discharge point are presented below. This analysis assumes there are no significant discharges, withdrawals or springs between the gage and the discharge point.

Maury River near Buena Vista, VA (#02024000):

Drainage Area = 647 mi²

1Q30 =	40 cfs	High Flow 1Q10 =	97 cfs
1Q10 =	53 cfs	High Flow 7Q10 =	107 cfs
7Q10 =	60 cfs	High Flow 30Q10 =	144 cfs
30Q10 =	68 cfs	Harmonic Mean =	239 cfs
30Q5 =	80 cfs		

South River near Riverside, VA (#02023500):

Drainage Area = 112 mi²

1Q30 =	12 cfs	High Flow 1Q10 =	17 cfs
1Q10 =	13 cfs	High Flow 7Q10 =	20 cfs
7Q10 =	14 cfs	High Flow 30Q10 =	24 cfs
30Q10 =	16 cfs	Harmonic Mean =	51 cfs
30Q5 =	18 cfs		

Maury River at the discharge point:

Drainage Area = 497 mi²

1Q30 =	24.6 cfs	15.8 MGD	High Flow 1Q10 =	72.9 cfs	47.1 MGD
1Q10 =	35.8 cfs	23.1 MGD	High Flow 7Q10 =	79.4 cfs	51.3 MGD
7Q10 =	41.3 cfs	26.7 MGD	High Flow 30Q10 =	110 cfs	71.1 MGD
30Q10 =	46.9 cfs	30.3 MGD	Harmonic Mean =	173 cfs	111 MGD
30Q5 =	56.2 cfs	36.3 MGD			

The high flow months are December through May.

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EFFLUENT/STREAM MIXING EVALUATION

Mixing zone predictions were made with the Virginia DEQ Mixing Zone Analysis Version 2.1 program. The predictions are based on the discharge and receiving stream characteristics, and are presented below.

3.0 MGD Annual Mix	6.0 MGD Annual Mix
<p>Effluent Flow = 3.0 MGD Stream 7Q10 = 26.7 MGD Stream 30Q10 = 30.3 MGD Stream 1Q10 = 23.1 MGD Stream slope = 0.001 ft/ft Stream width = 50 ft Bottom scale = 3 Channel scale = 1</p> <hr/> <p>Mixing Zone Predictions @ 7Q10 Depth = 1.6217 ft Length = 1530. Ft Velocity = .567 ft/sec Residence Time = .0312 days Recommendation: A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.</p> <hr/> <p>Mixing Zone Predictions @ 30Q10 Depth = 1.74 ft Length = 1438.54 ft Velocity = .5925 ft/sec Residence Time = .0281 days Recommendation: A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.</p> <hr/> <p>Mixing Zone Predictions @ 1Q10 Depth = 1.4979 ft Length = 1639.85 ft Velocity = .5394 ft/sec Residence Time = .8444 hours Recommendation: A complete mix assumption is appropriate for this situation and the entire 1Q10 may be used.</p>	<p>Effluent Flow = 6.0 MGD Stream 7Q10 = 26.7 MGD Stream 30Q10 = 30.3 MGD Stream 1Q10 = 23.1 MGD Stream slope = 0.001 ft/ft Stream width = 50 ft Bottom scale = 3 Channel scale = 1</p> <hr/> <p>Mixing Zone Predictions @ 7Q10 Depth = 1.7206 ft Length = 1452.73 ft Velocity = .5884 ft/sec Residence Time = .0286 days Recommendation: A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.</p> <hr/> <p>Mixing Zone Predictions @ 30Q10 Depth = 1.8351 ft Length = 1372.93 ft Velocity = .6124 ft/sec Residence Time = .0259 days Recommendation: A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.</p> <hr/> <p>Mixing Zone Predictions @ 1Q10 Depth = 1.6015 ft Length = 1546.9 ft Velocity = .5626 ft/sec Residence Time = .7638 hours Recommendation: A complete mix assumption is appropriate for this situation and the entire 1Q10 may be used.</p>
3.0 MGD Wet Season Mix	6.0 MGD Wet Season Mix
<p>Effluent Flow = 3.0 MGD Stream 7Q10 = 51.3 MGD Stream 30Q10 = 71.1 MGD Stream 1Q10 = 47.1 MGD Stream slope = 0.001 ft/ft Stream width = 60 ft Bottom scale = 3 Channel scale = 1</p> <hr/> <p>Mixing Zone Predictions @ 7Q10 Depth = 2.091 ft Length = 1777.62 ft Velocity = .6698 ft/sec Residence Time = .0307 days Recommendation: A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.</p> <hr/> <p>Mixing Zone Predictions @ 30Q10 Depth = 2.5344 ft Length = 1500.36 ft Velocity = .7543 ft/sec Residence Time = .023 days Recommendation: A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.</p> <hr/> <p>Mixing Zone Predictions @ 1Q10 Depth = 1.9905 ft Length = 1855.68 ft Velocity = .6494 ft/sec Residence Time = .7938 hours Recommendation: A complete mix assumption is appropriate for this situation and the entire 1Q10 may be used.</p>	<p>Effluent Flow = 6.0 MGD Stream 7Q10 = 51.3 MGD Stream 30Q10 = 71.1 MGD Stream 1Q10 = 47.1 MGD Stream slope = 0.001 ft/ft Stream width = 60 ft Bottom scale = 3 Channel scale = 1</p> <hr/> <p>Mixing Zone Predictions @ 7Q10 Depth = 2.1621 ft Length = 1725.91 ft Velocity = .6837 ft/sec Residence Time = .0292 days Recommendation: A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.</p> <hr/> <p>Mixing Zone Predictions @ 30Q10 Depth = 2.5974 ft Length = 1468.06 ft Velocity = .7658 ft/sec Residence Time = .0222 days Recommendation: A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.</p> <hr/> <p>Mixing Zone Predictions @ 1Q10 Depth = 2.0629 ft Length = 1798.6 ft Velocity = .6641 ft/sec Residence Time = .7524 hours Recommendation: A complete mix assumption is appropriate for this situation and the entire 1Q10 may be used.</p>

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APPENDIX B

EFFLUENT SCREENING AND EFFLUENT LIMITATIONS

EFFLUENT LIMITATIONS

A comparison of technology and water quality-based limits was performed and the most stringent limits were selected, as summarized in the table below.

Outfall 001

Final Limits

Design Flow: 3.0 MGD

PARAMETER	BASIS FOR LIMITS	EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average		Maximum		Frequency	Sample Type
Flow (MGD)	1	NL		NL		Continuous	TIRE
-----	-----	Monthly Average		Weekly Average		-----	-----
BOD ₅	2,3,4	30 mg/L	340 kg/d	45 mg/L	510 kg/d	1/Week	24 HC
TSS	2	30 mg/L	340 kg/d	45 mg/L	510 kg/d	1/Month	24 HC
Ammonia-N (Jun-Nov)(mg/L)	3	6.6		8.4		1/Week	24 HC
Effluent Chlorine (TRC)(mg/L)*	3	0.070		0.075		12/Day	Grab
E. coli (N/100 mL) (geometric mean)	3,5	126		NA		4/Month in any month of each calendar quarter* or 3/Week** @ 48-Hr intervals 10 am to 4 pm	Grab
-----	-----	Annual Average		Maximum		-----	-----
TP – Year to Date (mg/L)	7	NL		NA		1/Month	Calculated
TP – Calendar Year (mg/L)	7,8	0.5		NA		1/Year	Calculated
TN – Year to Date (mg/L)	7	NL		NA		1/Month	Calculated
TN – Calendar Year (mg/L)	7,8	6.0		NA		1/Year	Calculated
-----	-----	Minimum		Maximum		-----	-----
pH (S.U.)	3	6.5		9.5		1/Day	Grab
Dissolved Oxygen (mg/L)	3,4	5.0		NA		1/Day	Grab
Contact Chlorine (TRC)(mg/L)*	3,6	1.0		NA		12/Day	Grab

NL = No Limitation, monitoring required

NA = Not Applicable

TIRE = Totalizing, Indicating, and Recording equipment

24 HC = 24-Hour Composite

4/Month in any month of each calendar quarter = 4 samples, with at least 1 sample taken each calendar week, in any calendar month of each quarter and reported with the DMRs due January 10th, April 10th, July 10th and October 10th of each year

3/Week = 3 samples taken during the calendar week no less than 48 hours apart

12/Day = Grab sample with a minimum time separation of 90 minutes and a maximum time separation of 150 minutes

* = Applicable only when chlorination is used for disinfection

** = Applicable if an alternative to chlorination is used for disinfection.

BASIS DESCRIPTIONS

1. VPDES Permit Regulation (9VAC25-31)
2. Federal Effluent Requirements (Secondary Treatment Regulation - 40CFR133)
3. Water Quality Standards (9VAC25-260)
4. Regional DO Model
5. Maury River TMDL Report
6. Best Professional Judgment (BPJ)
7. GM No. 07-2008, Amendment No. 2, 10/23/07, Permitting Considerations for Facilities in the Chesapeake Bay Watershed
8. Annual average concentration limits are based on the Technology Regulation (9VAC25-40)

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Outfall 001

Final Limits

Design Flow: 6.0 MGD

PARAMETER	BASIS FOR LIMITS	EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average		Maximum		Frequency	Sample Type
Flow (MGD)	1	NL		NL		Continuous	TIRE
-----	-----	Monthly Average		Weekly Average		-----	-----
BOD ₅	2,3,4	30 mg/L	680 kg/d	45 mg/L	1000 kg/d	5/Week	24 HC
TSS	2	30 mg/L	680 kg/d	45 mg/L	1000 kg/d	1/Month	24 HC
Ammonia-N (Jun-Nov)(mg/L)	3	4.4		5.6		5/Week	24 HC
Effluent Chlorine (TRC)(mg/L)*	3	0.038		0.041		12/Day	Grab
E. coli (N/100 mL) (geometric mean)	3,5	62		NA		4/Month in any month of each calendar quarter * or 1/Day** 10 am to 4 pm	Grab
-----	-----	Annual Average		Maximum		-----	-----
TP – Year to Date (mg/L)	7	NL		NA		1/Month	Calculated
TP – Calendar Year (mg/L)	7,8	0.25		NA		1/Year	Calculated
TN – Year to Date (mg/L)	7	NL		NA		1/Month	Calculated
TN – Calendar Year (mg/L)	7,8	3.0		NA		1/Year	Calculated
-----	-----	Minimum		Maximum		-----	-----
pH (S.U.)	3	6.5		9.5		1/Day	Grab
Dissolved Oxygen (mg/L)	3,4	5.0		NA		1/Day	Grab
Contact Chlorine (TRC)(mg/L)*	3,6	1.0		NA		12/Day	Grab

NL = No Limitation, monitoring required

NA = Not Applicable

TIRE = Totalizing, Indicating, and Recording equipment

24 HC = 24-Hour Composite

4/Month in any month of each calendar quarter = 4 samples, with at least 1 sample taken each calendar week, in any calendar month of each quarter and reported with the DMRs due January 10th, April 10th, July 10th and October 10th of each year

5/Week = 5 samples taken, one per day, during the calendar week

12/Day = Grab sample with a minimum time separation of 90 minutes and a maximum time separation of 150 minutes

* = Applicable only when chlorination is used for disinfection

** = Applicable if an alternative to chlorination is used for disinfection.

BASIS DESCRIPTIONS

1. VPDES Permit Regulation (9VAC25-31)
2. Federal Effluent Requirements (Secondary Treatment Regulation - 40CFR133)
3. Water Quality Standards (9VAC25-260)
4. Regional DO Model
5. Maury River TMDL Report
6. Best Professional Judgment (BPJ)
7. GM No. 07-2008, Amendment No. 2, 10/23/07, Permitting Considerations for Facilities in the Chesapeake Bay Watershed
8. Annual average concentration limits are based on the Technology Regulation (9VAC25-40)

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LIMITING FACTORS – OVERVIEW:

The following potential limiting factors have been considered in developing this permit and fact sheet:

Water Quality Management Plan Regulation (WQMP) (9VAC25-720)	
A. TMDL limits	E. coli
B. Non-TMDL WLAs	None
C. CBP (TN & TP) WLAs	TN and TP via GP VAN040068
Federal Effluent Guidelines	BOD₅, TSS, pH
BPJ/Agency Guidance limits	TRC (contact)
Water Quality-based Limits - numeric	BOD₅, DO, TRC (effluent), E. coli, pH, Ammonia-N
Water Quality-based Limits - narrative	None
Technology-based Limits (9VAC25-40-70)	TN, TP
Whole Effluent Toxicity (WET)	See Appendix B
Storm Water Limits	NEC approved with reissuance of the permit

EVALUATION OF THE EFFLUENT – CONVENTIONAL POLLUTANTS:

The discharge for this facility was previously model using the Regional Stream Model as part of the Maury River model that started at Lexington-Rockbridge Regional WQCF and ended at the confluence of the James River and Matts Creek which is 23.7 miles downstream. The model includes discharges from Bontex, Buena Vista STP, Lees Carpets and Glasgow STP. The model was rerun at this reissuance using updated stream and effluent information. The Maury River Joint DO model is maintained in the DEQ-Valley Regional Office and is available for review upon request

Using the Regional Stream Model, it was determined that the following values were protective for Lexington-Rockbridge Regional WQCF at a design flow of 6.0 MGD:

CBOD ₅ =	25 mg/L
TKN =	8.7 mg/L
DO =	5.0 mg/L

Because the above values are protective at the 6.0 MGD flow tier, they are also protective at the 3.0 MGD flow tier.

Because a CBOD₅ concentration of 25 mg/L is equivalent to a BOD₅ concentration of 30 mg/L, a BOD₅ permit limit of 30 mg/L has been carried forward from the previous permit for both flow tiers. Based on a review of the last three years of BOD₅ effluent data, the effluent concentration averaged approximately 16% of the monthly average limit. In accordance with Guidance Memo No. 14-2003, the reduced monitoring frequency of 1/Week for the 3.0 MGD flow tier has been carried forward from the previous permit. The monitoring frequency for the 6.0 MGD flow tier has been increased from 1/Week to 5/Week in accordance with Guidance Memo No. 14-2003.

A nutrient removal facility is not expected to discharge effluent with TKN concentrations greater than 8 mg/L. In addition, the modeled TKN of 8.7 mg/L was greater than 2 times the chronic Ammonia-N WLA for the 6.0 MGD flow tier. TKN limits are not required when the modeled TKN effluent concentration is more than twice the Ammonia-N WLA. The Ammonia-N limits applied at the 6.0 MGD flow tier are deemed adequate for ensuring compliance with the modeled TKN value, and no TKN limits have been included in this permit.

The DO limit has been carried forward from the previous permit for both flow tiers.

The TSS limits reflect secondary treatment limits and have been carried forward from the previous permit.

The pH limits reflect the current WQS for pH in the receiving stream and have been carried forward from the previous permit.

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EVALUATION OF THE EFFLUENT – DISINFECTION:

The permittee currently uses UV disinfection. Because there have been no compliance issues with E. coli, the monitoring frequency for the 3.0 MGD flow tier of 3/Week has been carried forward from the previous permit. The E. coli monitoring frequency for the 6.0 MGD flow tier has been increased from 3/Week to 1/Day in accordance with Guidance Memo No. 14-2003. The E. coli limit for the 3.0 MGD flow tier has been carried forward from the previous permit. The E. coli limit for the 6.0 MGD flow tier has been reduced to 62 N/100 mL in order to maintain compliance with the TMDL WLA. Because the 6.0 MGD facility has not yet been constructed, a compliance schedule for meeting the more stringent limit has not been included in the permit. The E. coli limits are consistent with the TMDL WLA and are protective of the current WQS for E. coli in the receiving stream. The TRC disinfection requirements that apply if the facility switches to chlorination for disinfection have been carried forward from the previous permit. The E. coli monitoring frequency that applies if the facility switches to chlorination has been changed from 2/Month to 4/Month in any month of each calendar quarter in accordance with Guidance Memo No. 14-2003.

EVALUATION OF THE EFFLUENT – NUTRIENTS:

In accordance with § 62.1-44.19:14.C.5. of the Code of Virginia, this Significant Discharger has submitted a Registration Statement and DEQ has recognized that they are covered under the General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for TN and Total Phosphorus (TP) Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia (9VAC25-820) (GP). The effective date of coverage is January 1, 2012. Coverage under the GP will expire December 31, 2016. The load limit for TN is 54,820 lbs/year and TP is 4,568 lbs/year.

The Regulation for Nutrient Enriched Waters and Dischargers within the Chesapeake Bay Watershed (9VAC25-40-70) stipulates the inclusion of technology-based effluent concentration limits in the individual permit for any facility that has installed technology for the control of nitrogen and phosphorous whether by new construction, expansion, or upgrade. Technology based annual average effluent concentration limits of TN = 6.0 mg/L and TP = 0.5 mg/L have been required for the 3.0 MGD flow tier and limits of TN = 3.0 mg/L and TP = 0.25 mg/L have been required for the 6.0 MGD flow tier. At these annual average concentrations and design flows, the load limits will be met without the need to offset any nutrient loads.

EVALUATION OF THE EFFLUENT – TOXICS:

Stream: Water quality data for the receiving stream was obtained from Ambient Water Quality Monitoring Station (2-MRY014.78) on the Maury River off Route 60 at Ben Salem Wayside, downstream of the discharge. Values for these parameters are as follows:

Stream Information			
90% Annual Temp (°C) =	24.6	90% pH (SU) =	8.7
90% Wet Temp (°C) =	17.0	10% pH (SU) =	7.8
Mean Hardness (mg/L) =	114		

All toxic pollutants, including Ammonia-N and TRC, are assumed absent in the receiving stream because there are no data for these parameters directly above the discharge.

Discharge: The pH, temperature, and hardness values were obtained from data submitted by the permittee.

Effluent Information			
90% Annual Temp (°C) =	24.3	90% pH (SU) =	7.8
90% Wet Temp (°C) =	19.0	10% pH (SU) =	7.4
Mean Hardness (mg/L) =	164		

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WQC and WLAs were calculated for the WQS parameters for which data are available. The resulting WQC and WLAs are presented in this appendix. Current agency guidelines recommends the evaluation of toxic pollutant limits for TRC and Ammonia-N be based on default effluent concentrations of 20 mg/L and 9 mg/L, respectively. The effluent data were analyzed per the protocol for evaluation of effluent toxic pollutants included in this appendix with the following results:

- **TRC:** More stringent limits were determined to be necessary at both flow tiers. This change is due to decreased stream receiving stream flows and an increase in the monitoring frequency from 1/Day to 12/Day. Because the facility currently utilizes UV disinfection and an upgrade would be required prior to utilizing chlorination for disinfection, no compliance schedule for meeting the more stringent limits has been included.
- **Ammonia-N:** Less stringent Ammonia-N (Jun-Nov) limits have been determined to be necessary at both flow tiers based on decreased receiving stream pH and temperature. Because new stream pH and temperature information was available, the less stringent limits comply with antibacksliding requirements. As at the previous reissuance, no Ammonia-N (Dec-May) limits were determined to be necessary.

Based on a review of the last three years of Ammonia-N (Jun-Nov) effluent data, the effluent concentration averaged approximately 3% of the monthly average limit. In accordance with Guidance Memo No. 14-2003, the reduced monitoring frequency of 1/Week for the 3.0 MGD flow tier has been carried forward from the previous permit. The monitoring frequency for the 6.0 MGD flow tier has been increased from 1/Week to 5/Week in accordance with Guidance Memo No. 14-2003.

- A complete WQS toxics scan has been required for the 6.0 MGD flow tier. This monitoring must be performed within 1 year of the issuance of the CTO for the 6.0 MGD facility and must be reported using Attachment A of the permit.

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WQC-WLA SPREADSHEET INPUT – 3.0 MGD

WATER QUALITY CRITERIA / WASTE LOAD ALLOCATION ANALYSIS

Facility Name:

Lexington-Rockbridge Regional WQCF

Receiving Stream:

Maury River

Permit No.: VA0088161

Date: 12/10/2014

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information	Stream Flows	Mixing Information	Effluent Information
Mean Hardness (as CaCO ₃) = 114 mg/L	1Q10 (Annual) = 23.1 MGD	Annual - 1Q10 Flow = 100 %	Mean Hardness (as CaCO ₃) = 164 mg/L
90% Temperature (Annual) = 24.6 deg C	7Q10 (Annual) = 26.7 MGD	- 7Q10 Flow = 100 %	90% Temp (Annual) = 24.3 deg C
90% Temperature (Wet season) = 17.0 deg C	30Q10 (Annual) = 30.3 MGD	- 30Q10 Flow = 100 %	90% Temp (Wet season) = 19.0 deg C
90% Maximum pH = 8.7 SU	1Q10 (Wet season) = 47.1 MGD	Wet Season - 1Q10 Flow = 100 %	90% Maximum pH = 7.8 SU
10% Maximum pH = 7.8 SU	30Q10 (Wet season) = 71.1 MGD	- 30Q10 Flow = 100 %	10% Maximum pH = 7.4 SU
Tier Designation = 1	30Q5 = 36.3 MGD		Current Discharge Flow = 3.0 MGD
Public Water Supply (PWS) Y/N? = N	Harmonic Mean = 111 MGD		Discharge Flow for Limit Analysis = 3.0 MGD
V(alley) or P(iedmont)? = V			
Trout Present Y/N? = N			
Early Life Stages Present Y/N? = Y			

Footnotes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise.
- All flow values are expressed as Million Gallons per Day (MGD).
- Discharge volumes are highest monthly average or 2C maximum for Industries and design flows for Municipals.
- Hardness expressed as mg/l CaCO₃. Standards calculated using Hardness values in the range of 25-400 mg/l CaCO₃.
- "Public Water Supply" protects for fish & water consumption. "Other Surface Waters" protects for fish consumption only.
- Carcinogen "Y" indicates carcinogenic parameter.
- Ammonia WQSs selected from separate tables, based on pH and temperature.
- Metals measured as Dissolved, unless specified otherwise.
- WLA = Waste Load Allocation (based on standards).
- WLA = Waste Load Allocation (based on standards).
- WLAs are based on mass balances (less background, if data exist).
- Acute - 1 hour avg. concentration not to be exceeded more than 1/3 years.
- Chronic - 4 day avg. concentration (30 day avg. for Ammonia) not to be exceeded more than 1/3 years.
- Mass balances employ 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens, and Harmonic Mean for Carcinogens. Actual flows employed are a function of the mixing analysis and may be less than the actual flows.
- Effluent Limitations are calculated elsewhere using the minimum WLA and EPA's statistical approach (Technical Support Document).

WQC-WLA SPREADSHEET OUTPUT – 3.0 MGD

Facility Name:	Permit No.:	WATER QUALITY CRITERIA				NON-ANTIDEGRADATION		
Lexington-Rockbridge Regional WQCF	VA0088161	3.0 MGD Discharge Flow - Mix per "Mixer"				WASTE LOAD ALLOCATIONS		
Receiving Stream:	Date:					3.0 MGD Discharge - Mix per "Mixer"		
Maury River	12/10/2014	Aquatic Protection		Human Health		Aquatic Protection		Human
Toxic Parameter and Form	Carcinogen?	Acute	Chronic	Public Water Supplies	Other Surface Waters	Acute	Chronic	Health
Ammonia-N (Annual)	N	3.6E+00 mg/L	5.8E-01 mg/L	None	None	3.1E+01 mg/L	6.4E+00 mg/L	N/A
Ammonia-N (Wet Season)	N	2.9E+00 mg/L	7.9E-01 mg/L	None	None	4.9E+01 mg/L	2.0E+01 mg/L	N/A
Antimony	N	None	None	5.6E+00	6.4E+02	N/A	N/A	8.4E+03
Arsenic	N	3.4E+02	1.5E+02	1.0E+01	None	3.0E+03	1.5E+03	N/A
Cadmium	N	4.8E+00	1.3E+00	5.0E+00	None	4.2E+01	1.3E+01	N/A
Chlorine, Total Residual	N	1.9E-02 mg/L	1.1E-02 mg/L	None	None	1.7E-01 mg/L	1.1E-01 mg/L	N/A
Chromium (+3)	N	6.6E+02	8.5E+01	None	None	5.7E+03	8.5E+02	N/A
Chromium (+6)	N	1.6E+01	1.1E+01	None	None	1.4E+02	1.1E+02	N/A
Copper	N	1.6E+01	1.0E+01	1.3E+03	None	1.4E+02	1.0E+02	N/A
Lead	N	1.5E+02	1.7E+01	1.5E+01	None	1.3E+03	1.7E+02	N/A
Nickel	N	2.1E+02	2.3E+01	6.1E+02	4.6E+03	1.8E+03	2.3E+02	6.0E+04
Selenium, Total Recoverable	N	2.0E+01	5.0E+00	1.7E+02	4.2E+03	1.7E+02	5.0E+01	5.5E+04
Silver	N	4.7E+00	None	None	None	4.1E+01	N/A	N/A
Zinc	N	1.4E+02	1.4E+02	7.4E+03	2.6E+04	1.2E+03	1.4E+03	3.4E+05

Fact Sheet – VPDES Permit No. VA0088161 – Lexington-Rockbridge Regional WQCF

WQC-WLA SPREADSHEET INPUT – 6.0 MGD

WATER QUALITY CRITERIA / WASTE LOAD ALLOCATION ANALYSIS

Facility Name:

Lexington-Rockbridge Regional WQCF

Receiving Stream:

Maury River

Permit No.: VA0088161

Date: 12/10/2014

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information	Stream Flows	Mixing Information	Effluent Information
Mean Hardness (as CaCO ₃) = 114 mg/L	1Q10 (Annual) = 23.1 MGD	Annual - 1Q10 Flow = 100 %	Mean Hardness (as CaCO ₃) = 164 mg/L
90% Temperature (Annual) = 24.6 deg C	7Q10 (Annual) = 26.7 MGD	- 7Q10 Flow = 100 %	90% Temp (Annual) = 24.3 deg C
90% Temperature (Wet season) = 17.0 deg C	30Q10 (Annual) = 30.3 MGD	- 30Q10 Flow = 100 %	90% Temp (Wet season) = 19.0 deg C
90% Maximum pH = 8.7 SU	1Q10 (Wet season) = 47.1 MGD	Wet Season - 1Q10 Flow = 100 %	90% Maximum pH = 7.8 SU
10% Maximum pH = 7.8 SU	30Q10 (Wet season) = 71.1 MGD	- 30Q10 Flow = 100 %	10% Maximum pH = 7.4 SU
Tier Designation = 1	30Q5 = 36.3 MGD		Current Discharge Flow = 3.0 MGD
Public Water Supply (PWS) Y/N? = N	Harmonic Mean = 111 MGD		Discharge Flow for Limit Analysis = 6.0 MGD
V(alley) or P(edmont)? = V			
Trout Present Y/N? = N			
Early Life Stages Present Y/N? = Y			

Footnotes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise.
- All flow values are expressed as Million Gallons per Day (MGD).
- Discharge volumes are highest monthly average or 2C maximum for Industries and design flows for Municipals.
- Hardness expressed as mg/l CaCO₃. Standards calculated using Hardness values in the range of 25-400 mg/l CaCO₃.
- "Public Water Supply" protects for fish & water consumption. "Other Surface Waters" protects for fish consumption only.
- Carcinogen "Y" indicates carcinogenic parameter.
- Ammonia WQs selected from separate tables, based on pH and temperature.
- Metals measured as Dissolved, unless specified otherwise.
- WLA = Waste Load Allocation (based on standards).
- WLA = Waste Load Allocation (based on standards).
- WLAs are based on mass balances (less background, if data exist).
- Acute - 1 hour avg. concentration not to be exceeded more than 1/3 years.
- Chronic - 4 day avg. concentration (30 day avg. for Ammonia) not to be exceeded more than 1/3 years.
- Mass balances employ 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens, and Harmonic Mean for Carcinogens. Actual flows employed are a function of the mixing analysis and may be less than the actual flows.
- Effluent Limitations are calculated elsewhere using the minimum WLA and EPA's statistical approach (Technical Support Document).

WQC-WLA SPREADSHEET OUTPUT – 6.0 MGD

Facility Name:		Permit No.:		POST - EXPANSION WATER QUALITY CRITERIA				NON-ANTIDEGRADATION WASTE LOAD ALLOCATIONS			
Lexington-Rockbridge Regional WQCF		VA0088161		6.0 MGD Discharge Flow - Mix per "Mixer"				6.0 MGD Discharge - Mix per "Mixer"			
Receiving Stream:		Date:									
Maury River		12/10/2014		Human Health							
Toxic Parameter and Form	Carcinogen?	Aquatic Protection		Public Water		Other Surface		Aquatic Protection		Human	
		Acute	Chronic	Supplies		Waters		Acute	Chronic	Health	
Ammonia-N (Annual)	N	4.6E+00 mg/L	7.1E-01 mg/L	None		None		2.2E+01 mg/L	4.3E+00 mg/L	N/A	
Ammonia-N (Wet Season)	N	3.5E+00 mg/L	9.0E-01 mg/L	None		None		3.1E+01 mg/L	1.2E+01 mg/L	N/A	
Chlorine, Total Residual	N	1.9E-02 mg/L	1.1E-02 mg/L	None		None		9.2E-02 mg/L	6.0E-02 mg/L	N/A	

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PROTOCOL FOR THE EVALUATION OF THE EFFLUENT – TOXIC POLLUTANTS

Toxic pollutants were evaluated in accordance with OWP Guidance Memo No. 00-2011. Acute and Chronic WLAs (WLA_a and WLA_c) were analyzed according to the protocol below using a statistical approach (STAT.exe) to determine the necessity and magnitude of limits. Human Health WLAs (WLA_{hh}) were analyzed according to the same protocol through a simple comparison with the effluent data. If the WLA_{hh} exceeded the effluent datum or data mean, no limits were required. If the effluent datum or data mean exceeded the WLA_{hh} , the WLA_{hh} was imposed as the limit.

Since there are no data available for any toxic pollutants immediately upstream of this discharge, all upstream (background) pollutant concentrations are assumed to be "0".

The steps used in evaluating the effluent data are as follows:

- A. If all data are reported as "below detection" or $<$ the required Quantification Level (QL), and at least one detection level is \leq the required QL, then the pollutant is considered to be not significantly present in the discharge and no further monitoring is required.
- B. If all data are reported as "below detection", and all detection levels are $>$ the required QL, then an evaluation is performed in which the pollutant is assumed present at the lowest reported detection level.
 - B.1. If the evaluation indicates that no limits are needed, then the existing data set is adequate and no further monitoring is required.
 - B.2. If the evaluation indicates that limits are needed, then the existing data set is inadequate to make a determination and additional monitoring is required.
- C. If any data value is reported as detectable at or above the required QL, then the data are adequate to determine whether effluent limits are needed.
 - C.1. If the evaluation indicates that no limits are needed, then no further monitoring is required.
 - C.2. If the evaluation indicates that limits are needed, then the limits and associated requirements are specified in the draft permit.
 - C.3. (Exception for Metals data only) If the evaluation indicates that limits are needed, but the data are reported as a form other than "Dissolved" (except for Selenium), then the existing data set is inadequate to make a determination and additional monitoring is required.

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3.0 MGD Design Flow

Parameter	CASRN	QL (ug/L)	Data (ug/L unless noted otherwise)	Source of Data	Data Eval
METALS					
Antimony, dissolved	7440-36-0	0.2	<5, <5, <5 (Total Recoverable)	b,d,f	B.1
Arsenic, dissolved	7440-38-2	1.0	<5, <5, <5 (Total Recoverable)	b,d,f	B.1
Barium, dissolved	7440-39-3	---	Applicable to PWS waters only	---	---
Cadmium, dissolved	7440-43-9	0.3	<0.5, <0.5, <0.5 (Total Recoverable)	b,d,f	B.1
Chromium III, dissolved	16065-83-1	0.5	<1, <1 (Total)	d,f	B.1
Chromium VI, dissolved	18540-29-9	0.5	<1, <1 (Total)	d,f	B.1
Chromium, Total	7440-47-3	---	Applicable to PWS waters only	---	---
Copper, dissolved	7440-50-8	0.5	3, 3, 4 (Total Recoverable)	b,d,f	C.1
Iron, dissolved	7439-89-6	1.0	Applicable to PWS waters only	---	---
Lead, dissolved	7439-92-1	0.5	<5, <5, <5 (Total Recoverable)	b,d,f	B.1
Manganese, dissolved	7439-96-5	0.2	Applicable to PWS waters only	---	---
Mercury, dissolved	7439-97-6	1.0	<0.2, <0.2, <0.2 (Total Recoverable)	b,d,f	A
Nickel, dissolved	7440-02-0	0.5	<5, <5, <5 (Total Recoverable)	b,d,f	B.1
Selenium, total recoverable	7782-49-2	2.0	<5, <5, <5 (Total Recoverable)	b,d,f	B.1
Silver, dissolved	7440-22-4	0.2	<1, <1, <1 (Total Recoverable)	b,d,f	B.1
Thallium, dissolved	7440-28-0	---	<5, <5, <5 (Total Recoverable)	b,d,f	B.1
Zinc, dissolved	7440-66-6	2.0	49, 49, 43 (Total Recoverable)	b,d,f	C.1
PESTICIDES/PCBS					
Aldrin ^c	309-00-2	0.05	Previously evaluated, no further testing required.	---	---
Chlordane ^c	57-74-9	0.2	Previously evaluated, no further testing required.	---	---
Chlorpyrifos	2921-88-2	(5)	Previously evaluated, no further testing required.	---	---
DDD ^c	72-54-8	0.1	Previously evaluated, no further testing required.	---	---
DDE ^c	72-55-9	0.1	Previously evaluated, no further testing required.	---	---
DDT ^c	50-29-3	0.1	Previously evaluated, no further testing required.	---	---
Demeton	8065-48-3	---	Previously evaluated, no further testing required.	---	---
Diazinon	333-41-5	---	<1	c	A
Dieldrin ^c	60-57-1	0.1	Previously evaluated, no further testing required.	---	---
Alpha-Endosulfan	959-98-8	0.1	<0.05	c	A
Beta-Endosulfan	33213-65-9	0.1	<0.05	c	A
Alpha-Endosulfan + Beta-Endosulfan		---	<0.10	c	A
Endosulfan Sulfate	1031-07-8	0.1	<0.05	c	A
Endrin	72-20-8	0.1	Previously evaluated, no further testing required.	---	---
Endrin Aldehyde	7421-93-4	---	<0.05	c	A
Guthion	86-50-0	---	Previously evaluated, no further testing required.	---	---
Heptachlor ^c	76-44-8	0.05	Previously evaluated, no further testing required.	---	---
Heptachlor Epoxide ^c	1024-57-3	---	<0.05	c	A
Hexachlorocyclohexane Alpha-BHC ^c	319-84-6	---	<0.05	c	A
Hexachlorocyclohexane Beta-BHC ^c	319-85-7	---	<0.05	c	A
Hexachlorocyclohexane Gamma-BHC (synonym = Lindane)	58-89-9	---	Previously evaluated, no further testing required.	---	---
Kepone	143-50-0	---	Previously evaluated, no further testing required.	---	---

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Parameter	CASRN	QL (ug/L)	Data (ug/L unless noted otherwise)	Source of Data	Data Eval
Malathion	121-75-5	---	Previously evaluated, no further testing required.	---	---
Methoxychlor	72-43-5	---	Previously evaluated, no further testing required.	---	---
Mirex	2385-85-5	---	Previously evaluated, no further testing required.	---	---
Parathion	56-38-2	---	Previously evaluated, no further testing required.	---	---
PCB Total ^C	1336-36-3	7.0	Previously evaluated, no further testing required.	---	---
Toxaphene ^C	8001-35-2	5.0	Previously evaluated, no further testing required.	---	---
BASE NEUTRAL EXTRACTABLES					
Acenaphthene	83-32-9	10.0	<5, <5, <5	b,d,f	A
Anthracene	120-12-7	10.0	<5, <5, <5	b,d,f	A
Benzidine ^C	92-87-5	---	<5, <5, <5	b,d,f	A
Benzo (a) anthracene ^C	56-55-3	10.0	<5, <5, <5	b,d,f	A
Benzo (b) fluoranthene ^C	205-99-2	10.0	<5, <5, <5	b,d,f	A
Benzo (k) fluoranthene ^C	207-08-9	10.0	<5, <5, <5	b,d,f	A
Benzo (a) pyrene ^C	50-32-8	10.0	<5, <5, <5	b,d,f	A
Bis 2-Chloroethyl Ether ^C	111-44-4	---	<5, <5, <5	b,d,f	A
Bis 2-Chloroisopropyl Ether	108-60-1	---	<5, <5, <5	b,d,f	A
Bis-2-Ethylhexyl Phthalate ^C	117-81-7	10.0	<5, <5, <5	b,d,f	A
Butyl benzyl phthalate	85-68-7	10.0	<5, <5, <5	b,d,f	A
2-Chloronaphthalene	91-58-7	---	<5, <5, <5	b,d,f	A
Chrysene ^C	218-01-9	10.0	<5, <5, <5	b,d,f	A
Dibenz(a,h)anthracene ^C	53-70-3	20.0	<5, <5, <5	b,d,f	A
1,2-Dichlorobenzene	95-50-1	10.0	<5, <5, <5	b,d,f	A
1,3-Dichlorobenzene	541-73-1	10.0	<5, <5, <5	b,d,f	A
1,4-Dichlorobenzene	106-46-7	10.0	<5, <5, <5	b,d,f	A
3,3-Dichlorobenzidine ^C	91-94-1	---	<5, <5, <5	b,d,f	A
Diethyl phthalate	84-66-2	10.0	<5, <5, <5	b,d,f	A
Dimethyl phthalate	131-11-3	---	<5, <5, <5	b,d,f	A
Di-n-Butyl Phthalate	84-74-2	10.0	<5, <5, <5	b,d,f	A
2,4-Dinitrotoluene	121-14-2	10.0	<5, <5, <5	b,d,f	A
1,2-Diphenylhydrazine ^C	122-66-7	---	<5, <5, <5	b,d,f	A
Fluoranthene	206-44-0	10.0	<5, <5, <5	b,d,f	A
Fluorene	86-73-7	10.0	<5, <5, <5	b,d,f	A
Hexachlorobenzene ^C	118-74-1	---	<5, <5, <5	b,d,f	A
Hexachlorobutadiene ^C	87-68-3	---	<5, <5, <5	b,d,f	A
Hexachlorocyclopentadiene	77-47-4	---	<5, <5, <5	b,d,f	A
Hexachloroethane ^C	67-72-1	---	<5, <5, <5	b,d,f	A
Indeno(1,2,3-cd)pyrene ^C	193-39-5	20.0	<5, <5, <5	b,d,f	A
Isophorone ^C	78-59-1	10.0	<5, <5, <5	b,d,f	A
Nitrobenzene	98-95-3	10.0	<5, <5, <5	b,d,f	A
N-Nitrosodimethylamine ^C	62-75-9	---	<5, <5, <5	b,d,f	A
N-Nitrosodi-n-propylamine ^C	621-64-7	---	<5, <5, <5	b,d,f	A
N-Nitrosodiphenylamine ^C	86-30-6	---	<5, <5, <5	b,d,f	A
Pyrene	129-00-0	10.0	<5, <5, <5	b,d,f	A
1,2,4-Trichlorobenzene	120-82-1	10.0	<5, <5, <5	b,d,f	A

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Parameter	CASRN	QL (ug/L)	Data (ug/L unless noted otherwise)	Source of Data	Data Eval
VOLATILES					
Acrolein	107-02-8	---	<50, <50, <50	b,d,f	A
Acrylonitrile ^C	107-13-1	---	<50, <50, <50	b,d,f	A
Benzene ^C	71-43-2	10.0	<5, <5, <5	b,d,f	A
Bromoform ^C	75-25-2	10.0	<5, <5, <5	b,d,f	A
Carbon Tetrachloride ^C	56-23-5	10.0	<5, <5, <5	b,d,f	A
Chlorobenzene	108-90-7	50.0	<5, <5, <5	b,d,f	A
Chlorodibromomethane ^C	124-48-1	10.0	<5, <5, <5	b,d,f	A
Chloroform	67-66-3	10.0	<5, <5, <5	b,d,f	A
Dichlorobromomethane ^C	75-27-4	10.0	<5, <5, <5	b,d,f	A
1,2-Dichloroethane ^C	107-06-2	10.0	<5, <5, <5	b,d,f	A
1,1-Dichloroethylene	75-35-4	10.0	<5, <5, <5	b,d,f	A
1,2-trans-dichloroethylene	156-60-5	---	<5, <5, <5	b,d,f	A
1,2-Dichloropropane ^C	78-87-5	---	<5, <5, <5	b,d,f	A
1,3-Dichloropropene ^C	542-75-6	---	<5, <5, <5	b,d,f	A
Ethylbenzene	100-41-4	10.0	<5, <5, <5	b,d,f	A
Methyl Bromide	74-83-9	---	<5, <5, <5	b,d,f	A
Methylene Chloride ^C	75-09-2	20.0	<5, <5, <5	b,d,f	A
1,1,2,2-Tetrachloroethane ^C	79-34-5	---	<5, <5, <5	b,d,f	A
Tetrachloroethylene	127-18-4	10.0	<5, <5, <5	b,d,f	A
Toluene	10-88-3	10.0	<5, <5, <5	b,d,f	A
1,1,2-Trichloroethane ^C	79-00-5	---	<5, <5, <5	b,d,f	A
Trichloroethylene ^C	79-01-6	10.0	<5, <5, <5	b,d,f	A
Vinyl Chloride ^C	75-01-4	10.0	<5, <5, <5	b,e,f	A
RADIONUCLIDES					
Beta Particle & Photon Activity (mrem/yr)	N/A	---	Applicable to PWS waters only	---	---
Combined Radium 226 and 228 (pCi/L)	N/A	---	Applicable to PWS waters only	---	---
Gross Alpha Particle Activity (pCi/L)	N/A	---	Applicable to PWS waters only	---	---
Uranium	N/A	---	Applicable to PWS waters only	---	---
ACID EXTRACTABLES					
2-Chlorophenol	95-57-8	10.0	<5, <5, <5	b,d,f	A
2,4-Dichlorophenol	120-83-2	10.0	<5, <5, <5	b,d,f	A
2,4-Dimethylphenol	105-67-9	10.0	<5, <5, <5	b,d,f	A
2,4-Dinitrophenol	51-28-5	---	<20, <20, <20	b,d,f	A
2-Methyl-4,6-Dinitrophenol	534-52-1	---	Previously evaluated. No further testing required.	---	---
Nonylphenol	104-40-51	---	<5	c	A
Pentachlorophenol ^C	87-86-5	50.0	<10, <10, <10	b,d,f	A
Phenol	108-95-2	10.0	<5, <5, <20	b,d,f	A
2,4,6-Trichlorophenol ^C	88-06-2	10.0	<5, <5, <5	b,d,f	A
MISCELLANEOUS					
Ammonia-N (mg/L) (Jun-Nov)	766-41-7	0.2 mg/L	Default = 9 mg/L	a	C.2
Ammonia-N (mg/L) (Dec-May)	766-41-7	0.2 mg/L	Default = 9 mg/L	a	C.1

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Parameter	CASRN	QL (ug/L)	Data (ug/L unless noted otherwise)	Source of Data	Data Eval
Chloride (mg/L)	16887-00-6	---	Previously evaluated. No further testing required.	---	---
TRC (mg/L)	7782-50-5	0.1 mg/L	Default = 20 mg/L	a	C.2
Cyanide, Free	57-12-5	10.0	<5, <5	b,f	A
2,4-Dichlorophenoxy acetic acid (synonym = 2,4-D)	94-75-7	---	Applicable to PWS waters only	---	---
Dioxin (2,3,7,8-tetrachlorodibenzo-p- dioxin)(ppq)	1746-01-6	0.01	Applicable to Paper Mills & Oil Refineries only	---	---
Foaming Agents (as MBAS)	N/A	---	Applicable to PWS waters only	---	---
Sulfide, dissolved	18496-25-8	100	No data. Monitoring required.	---	---
Nitrate as N (mg/L)	14797-55-8	---	Applicable to PWS waters only	---	---
Sulfate (mg/L)	N/A	---	Applicable to PWS waters only	---	---
Total Dissolved Solids (mg/L)	N/A	---	Applicable to PWS waters only	---	---
Tributyltin	60-10-5	---	Previously evaluated. No further testing required.	---	---
2-(2,4,5-Trichlorophenoxy) propionic acid (synonym = Silvex)	93-72-1	---	Applicable to PWS waters only	---	---
Hardness (mg/L as CaCO ₃)	471-34-1	---	169, 155, 168; Average = 164	b,d,f	---

The **superscript "C"** following the parameter name indicates that the substance is a known or suspected carcinogen; human health criteria at risk level 10⁻⁵.

CASRN = Chemical Abstract Service Registry Number for each parameter is referenced in the current Water Quality Standards. A unique numeric identifier designating only one substance. The Chemical Abstract Service is a division of the American Chemical Society.

“Source of Data” codes:

a = default effluent concentration
b = Form 2A scan #1 rec'd 11.07.13 (sample date = 10.15.13)
c = Attachment A monitoring received 10.04.13
d = Form 2A scan #2 rec'd 3.5.14 (sample date = 1.28.14)
e = Email dated 3.20.14 with vinyl chloride result
f = Form 2A scan #3 rec'd 4.17.14 (sample date = 3.10.14)

"Data Evaluation" codes:

See section titled PROTOCOL FOR THE EVALUATION OF EFFLUENT TOXIC POLLUTANTS for an explanation of the code used.

6.0 MGD Design Flow

Parameter	CASRN	QL (ug/L)	Data (ug/L unless noted otherwise)	Source of Data	Data Eval
MISCELLANEOUS					
Ammonia-N (mg/L) (Jun-Nov)	766-41-7	0.2 mg/L	Default = 9 mg/L	a	C.2
Ammonia-N (mg/L) (Dec-May)	766-41-7	0.2 mg/L	Default = 9 mg/L	a	C.1
TRC (mg/L)	7782-50-5	0.1 mg/L	Default = 20 mg/L	a	C.2

The **superscript "C"** following the parameter name indicates that the substance is a known or suspected carcinogen; human health criteria at risk level 10⁻⁵.

CASRN = Chemical Abstract Service Registry Number for each parameter is referenced in the current Water Quality Standards. A unique numeric identifier designating only one substance. The Chemical Abstract Service is a division of the American Chemical Society.

“Source of Data” codes:

a = default effluent concentration

"Data Evaluation" codes:

See section titled PROTOCOL FOR THE EVALUATION OF EFFLUENT TOXIC POLLUTANTS for an explanation of the code used.

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STAT.EXE RESULTS – 3.0 MGD Flow Tier:

<p><u>Ammonia-N (Jun-Nov)</u> Chronic averaging period = 30 WLAa = 31 WLAc = 6.4 Q.L. = 0.2 # samples/mo. = 20 # samples/wk. = 5</p> <p>Summary of Statistics: # observations = 1 Expected Value = 9 Variance = 29.16 C.V. = 0.6 97th percentile daily values = 21.9007 97th percentile 4 day average = 14.9741 97th percentile 30 day average= 10.8544 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>A limit is needed based on Chronic Toxicity Maximum Daily Limit = 12.9130885978644 Average Weekly Limit = 8.41621292731141 Average Monthly Limit = 6.64574387825001</p> <p>The data are: 9</p>	<p><u>Ammonia-N (Dec-May)</u> Chronic averaging period = 30 WLAa = 49 WLAc = 20 Q.L. = 0.2 # samples/mo. = 20 # samples/wk. = 5</p> <p>Summary of Statistics: # observations = 1 Expected Value = 9 Variance = 29.16 C.V. = 0.6 97th percentile daily values = 21.9007 97th percentile 4 day average = 14.9741 97th percentile 30 day average= 10.8544 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 9</p>	<p><u>TRC</u> Chronic averaging period = 4 WLAa = 0.17 WLAc = 0.11 Q.L. = 0.1 # samples/mo. = 360 # samples/wk. = 84</p> <p>Summary of Statistics: # observations = 1 Expected Value = 20 Variance = 144 C.V. = 0.6 97th percentile daily values = 48.6683 97th percentile 4 day average = 33.2758 97th percentile 30 day average= 24.1210 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>A limit is needed based on Chronic Toxicity Maximum Daily Limit = 0.160883226245855 Average Weekly Limit = 7.46083616211286E-02 Average Monthly Limit = 7.00467354100591E-02</p> <p>The data are: 20</p>
<p><u>Arsenic, Dissolved</u> Chronic averaging period = 4 WLAa = 3000 WLAc = 1500 Q.L. = 1 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics: # observations = 1 Expected Value = 5 Variance = 9 C.V. = 0.6 97th percentile daily values = 12.1670 97th percentile 4 day average = 8.31895 97th percentile 30 day average= 6.03026 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 5</p>	<p><u>Cadmium, Dissolve</u> Chronic averaging period = 4 WLAa = 42 WLAc = 13 Q.L. = 0.3 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics: # observations = 1 Expected Value = .5 Variance = .09 C.V. = 0.6 97th percentile daily values = 1.21670 97th percentile 4 day average = .831895 97th percentile 30 day average= .603026 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 0.5</p>	<p><u>Chromium III, Dissolved</u> Chronic averaging period = 4 WLAa = 5700 WLAc = 850 Q.L. = 0.5 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics: # observations = 1 Expected Value = 1 Variance = .36 C.V. = 0.6 97th percentile daily values = 2.43341 97th percentile 4 day average = 1.66379 97th percentile 30 day average= 1.20605 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 1</p>
<p><u>Chromium VI, Dissolved</u> Chronic averaging period = 4 WLAa = 140 WLAc = 110 Q.L. = 0.5 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics: # observations = 1 Expected Value = 1 Variance = .36 C.V. = 0.6 97th percentile daily values = 2.43341 97th percentile 4 day average = 1.66379 97th percentile 30 day average= 1.20605 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 1</p>	<p><u>Copper, Dissolved</u> Chronic averaging period = 4 WLAa = 140 WLAc = 100 Q.L. = 0.5 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics: # observations = 3 Expected Value = 3.33333 Variance = 4 C.V. = 0.6 97th percentile daily values = 8.11139 97th percentile 4 day average = 5.54596 97th percentile 30 day average= 4.02017 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 3, 3, 4</p>	<p><u>Lead, Dissolved</u> Chronic averaging period = 4 WLAa = 1300 WLAc = 170 Q.L. = 0.5 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics: # observations = 1 Expected Value = 5 Variance = 9 C.V. = 0.6 97th percentile daily values = 12.1670 97th percentile 4 day average = 8.31895 97th percentile 30 day average= 6.03026 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 5</p>

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STAT.EXE RESULTS – 3.0 MGD Flow Tier:

Nickel, Dissolved Chronic averaging period = 4 WLAa = 1800 WLAc = 230 Q.L. = 0.5 # samples/mo. = 1 # samples/wk. = 1 Summary of Statistics: # observations = 1 Expected Value = 5 Variance = 9 C.V. = 0.6 97th percentile daily values = 12.1670 97th percentile 4 day average = 8.31895 97th percentile 30 day average= 6.03026 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data No Limit is required for this material The data are: 5	Selenium, Total Recoverable Chronic averaging period = 4 WLAa = 170 WLAc = 50 Q.L. = 2 # samples/mo. = 1 # samples/wk. = 1 Summary of Statistics: # observations = 1 Expected Value = 5 Variance = 9 C.V. = 0.6 97th percentile daily values = 12.1670 97th percentile 4 day average = 8.31895 97th percentile 30 day average= 6.03026 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data No Limit is required for this material The data are: 5	Silver, Dissolved Chronic averaging period = 4 WLAa = 41 WLAc = Q.L. = 0.2 # samples/mo. = 1 # samples/wk. = 1 Summary of Statistics: # observations = 1 Expected Value = 1 Variance = .36 C.V. = 0.6 97th percentile daily values = 2.43341 97th percentile 4 day average = 1.66379 97th percentile 30 day average= 1.20605 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data No Limit is required for this material The data are: 1
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Zinc, Dissolved Chronic averaging period = 4 WLAa = 1200 WLAc = 1400 Q.L. = 2 # samples/mo. = 1 # samples/wk. = 1 Summary of Statistics: # observations = 3 Expected Value = 47 Variance = 795.24 C.V. = 0.6 97th percentile daily values = 114.370 97th percentile 4 day average = 78.1981 97th percentile 30 day average= 56.6845 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data No Limit is required for this material The data are: 49, 49, 43		
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STAT.EXE RESULTS – 6.0 MGD Flow Tier:

Ammonia-N (Jun-Nov) Chronic averaging period = 30 WLAa = 22 WLAc = 4.3 Q.L. = 0.2 # samples/mo. = 20 # samples/wk. = 5 Summary of Statistics: # observations = 1 Expected Value = 9 Variance = 29.16 C.V. = 0.6 97th percentile daily values = 21.9007 97th percentile 4 day average = 14.9741 97th percentile 30 day average= 10.8544 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data A limit is needed based on Chronic Toxicity Maximum Daily Limit = 8.67598140169014 Average Weekly Limit = 5.65464306053735 Average Monthly Limit = 4.46510916819923 The data are: 9	Ammonia-N (Dec-May) Chronic averaging period = 30 WLAa = 31 WLAc = 12 Q.L. = 0.2 # samples/mo. = 20 # samples/wk. = 5 Summary of Statistics: # observations = 1 Expected Value = 9 Variance = 29.16 C.V. = 0.6 97th percentile daily values = 21.9007 97th percentile 4 day average = 14.9741 97th percentile 30 day average= 10.8544 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data No Limit is required for this material The data are: 9	TRC Chronic averaging period = 4 WLAa = 0.092 WLAc = 0.06 Q.L. = 0.1 # samples/mo. = 360 # samples/wk. = 84 Summary of Statistics: # observations = 1 Expected Value = 20 Variance = 144 C.V. = 0.6 97th percentile daily values = 48.6683 97th percentile 4 day average = 33.2758 97th percentile 30 day average= 24.1210 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data A limit is needed based on Chronic Toxicity Maximum Daily Limit = 8.77544870431939E-02 Average Weekly Limit = 0.040695469975161 Average Monthly Limit = 3.82073102236686E-02 The data are: 20
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WHOLE EFFLUENT TOXICITY (WET) EVALUATION:

Applicability of TMP: DEQ guidance states that a municipal sewage treatment plant with a design flow greater than or equal to 1.0 MGD will be subject to Toxics Management Program (TMP) requirements (TMP Guidance Memo No. 00-2012, 8/24/2000, Part IV.2.A).

Summary of Toxicity Testing: The previous permit required annual chronic testing using *Ceriodaphnia dubia* and *Pimephales promelas*. Table 1 contains a summary of the toxicity testing results during the term of the permit. These data were evaluated using the procedures outlined in the TMP guidance.

Rationale for Acute versus Chronic Toxicity Testing: The existing permit requires chronic toxicity testing only for the existing flow tier. Table 1 indicates that the 48-hour LC_{50} was $> 100\%$ in all of the chronic toxicity tests of the previous permit term; therefore, no acute toxicity testing is required at this reissuance. The permit contains language that should chronic WET monitoring result in a 48-hour $LC_{50} \leq 100\%$ effluent, the permittee must commence acute toxicity testing. Upon expansion to the 6.0 MGD, both acute and chronic toxicity testing will be required.

Sample Type: A sample type of 24 hour composite is representative of the discharge.

Monitoring Period: Previous permits have carried forward the requirement that annual monitoring be conducted between July 1st and September 31st of each year. There has been no toxicity noted during these months for the past two permit terms; therefore, the 2015 permit will allow the annual chronic toxicity testing to be conducted anytime during the calendar year.

The permittee must conduct quarterly monitoring for the 6.0 MGD flow tier; therefore, no monitoring period other than quarterly is specified.

Rationale for Monitoring Frequency: Annual monitoring using *Ceriodaphnia dubia* and *Pimephales promelas* is required at the existing 3.0 MGD flow tier.

The facility will be required to perform quarterly monitoring starting in the calendar quarter that is six months from the date of issuance of a CTO for the 6.0 MGD facility. The monitoring shall continue until a total of four quarters is completed. Per the TMP Guidance, both species (*Ceriodaphnia dubia* and *Pimephales promelas*) will be required for both acute and chronic testing. The results from all the quarterly testing will be evaluated to determine if there is a need for any WET limits. If no limits are deemed necessary, and all tests are acceptable, the facility will move to annual monitoring at a time period specified by DEQ.

Evaluation of Acute Instream Waste Concentration (IWC_a): The Acute IWC is $\leq 33\%$ for the 3.0 MGD flow tier (see Table 2); therefore, the acute toxicity criteria is LC_{50} .

The Acute IWC is $\leq 33\%$ for the 6.0 MGD flow tier normally indicating the LC_{50} criterion for the acute tests. In this case, the LC_{50} criterion for the acute tests was not appropriate at the 6.0 MGD flow tier so no value was reported on Table 3. Table 3 indicates a NOAEC endpoint of 100% for the 6.0 MGD flow tier, which has been applied.

Calculation of WLAs: The acute and chronic WLAs are shown in Tables 2 and 3.

Dilution Series: The dilution series that are being recommended are contained in Tables 2 and 3.

Stat.exe Limit Evaluation: The WLAs are used in the Department's Stat.exe program in order to perform a statistical evaluation of the acute and chronic test results expressed as Toxicity Units (TUs). The toxicity data are analyzed separately by species and test type (acute or chronic).

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Chronic Stat.exe Limit Evaluation: The summary of the chronic toxicity testing data are shown in Table 1. The results of the Stat.exe evaluation are shown in Table 4. Based on the evaluation of the chronic toxicity data, a WET Limit is not required at this time.

Midpoint Check Stat.exe Evaluation: In this case, the recommended dilution series is not the standard 0.5 series so a midpoint check is necessary. The midpoint of the chronic dilution series is TUC = 5.88 for the 3.0 MGD flow tier and TUC = 3.23 MGD for the 6.0 MGD flow tier. The midpoint of the chronic test dilution series was evaluated using Stat.exe to determine if limits would be inappropriately triggered (Table 4). The midpoint was entered as a chronic toxicity Unit (TUC). Since no limit was triggered by the midpoint, the recommended dilution series can be used without the need for adjustment.

Peer Reviewer: Dawn Jeffries

Date: November 13, 2014

Table 1
Summary of Chronic Toxicity Testing

Monitoring Period	Test Date	Chronic 3-Brood Static Renewal Survival and Reproduction <i>Ceriodaphnia dubia</i> (TUC)			Chronic 7-Day Static Renewal Survival and Growth <i>Pimephales promelas</i> (TUC)		
		Survival (TUC)	Repro (TUC)	48-hr LC ₅₀	Survival (TUC)	Growth (TUC)	48-hr LC ₅₀
1st Annual	8/17/10	1.0	1.0	>100	1.0	1.0	>100
2 nd Annual	8/09/11	1.0	1.0	>100	1.0	1.0	>100
3 rd Annual	8/07/12	1.0	1.0	>100	1.0	1.0	>100
4 th Annual	8/04/13	1.0	1.0	>100	1.0	5.88	>100
5 th Annual	8/03/14	1.0	1.0	>100	1.0	1.0	>100

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Table 2
WETLim10.xls Spreadsheet

Spreadsheet for determination of WET test endpoints or WET limits									
Excel 97			Acute Endpoint/Permit Limit						
Revision Date: 12/13/13			Use as LC ₅₀ in Special Condition, as TU _a on DMR						
File: WETLIM10.xls			ACUTE 1.44794894 TU _a LC ₅₀ = 70 % Use as 1.42 TU _a						
(MIX.EXE required also)			ACUTE WLA _a 2.61 Note: Inform the permittee that if the mean of the data exceeds this TU _a : 1.0 a limit may result using STATS.EXE						
			Chronic Endpoint/Permit Limit						
			Use as NOEC in Special Condition, as TU _c on DMR						
			CHRONIC 14.4794894 TU _c NOEC = 7 % Use as 14.28 TU _c						
			BOTH* 26.1000006 TU _c NOEC = 4 % Use as 25.00 TU _c						
			AML 14.4794894 TU _c NOEC = 7 % Use as 14.28 TU _c						
Enter data in the cells with blue type:									
Entry Date: 11/13/14			ACUTE WLA _{a,c} 26.1 Note: Inform the permittee that if the mean of the data exceeds this TU _c : 5.95026899						
Facility Name: Lexington Rockbridge			CHRONIC WLA _c 9.9						
VPDES Number: VA0088161			* Both means acute expressed as chronic a limit may result using STATS.EXE						
Outfall Number: 001									
Plant Flow: 3 MGD			% Flow to be used from MIX.EXE						
Acute 1Q10: 23.1 MGD			Diffuser /modeling study?						
Chronic 7Q10: 26.7 MGD			Enter Y/N						
			Acute 1 :1						
			Chronic 1 :1						
Are data available to calculate CV? (Y/N)			N (Minimum of 10 data points, same species, needed)						
Are data available to calculate ACR? (Y/N)			N (NOEC<LC50, do not use greater/less than data)						
			Go to Page 2						
			Go to Page 3						
IWC _a 11.49425287 % Plant flow/plant flow + 1Q10			NOTE: If the IWC _a is >33%, specify the NOAEC = 100% test/endpoint for use						
IWC _c 10.1010101 % Plant flow/plant flow + 7Q10									
Dilution, acute 8.7 100/IWC _a									
Dilution, chronic 9.9 100/IWC _c									
WLA _a 2.61 Instream criterion (0.3 TU _a) X's Dilution, acute									
WLA _c 9.9 Instream criterion (1.0 TU _c) X's Dilution, chronic									
WLA _{a,c} 26.1 ACR X's WLA _a - converts acute WLA to chronic units									
ACR -acute/chronic ratio 10 LC50/NOEC (Default is 10 - if data are available, use tables Page 3)									
CV-Coefficient of variation 0.6 Default of 0.6 - if data are available, use tables Page 2)									
Constants eA 0.4109447 Default = 0.41									
eB 0.6010373 Default = 0.60									
eC 2.4334175 Default = 2.43									
eD 2.4334175 Default = 2.43 (1 samp)									
			No. of samples 1 **The Maximum Daily Limit is calculated from the lowest LTA, X's eC. The LTA _{a,c} and MDL using it are driven by the ACR.						
LTA _{a,c} 10.72565667 WLA _{a,c} X's eA									
LTA _c 5.95026927 WLA _c X's eB									
MDL** with LTA _{a,c} 26.10000064 TU _c NOEC = 3.831418 (Protects from acute/chronic toxicity)			Rounded NOEC's %						
MDL** with LTA _c 14.47948937 TU _c NOEC = 6.906321 (Protects from chronic toxicity)			NOEC = 4 %						
AML with lowest LTA 14.47948937 TU _c NOEC = 6.906321 Lowest LTA X's eD			NOEC = 7 %						
			NOEC = 7						
IF ONLY ACUTE ENDPOINT/LIMIT IS NEEDED, CONVERT MDL FROM TU _c to TU _a									
MDL with LTA _{a,c} 2.610000064 TU _a LC50 = 38.314175 %			Rounded LC50's %						
MDL with LTA _c 1.447948937 TU _a LC50 = 69.063209 %			LC50 = 39 %						
			LC50 = 70						

CHRONIC DILUTION SERIES TO RECOMMEND					
	Monitoring % Effluent	TU _c	Limit % Effluent	TU _c	
Dilution series based on data mean	17	5.95026899			
Dilution series to use for limit			7	14.29	
Dilution factor to recommend:	0.412310563		0.264575131		
Dilution series to recommend:	100.0	1.00	100.0	1.00	
	41.2	2.43	26.5	3.78	
	17.0	5.88	7.0	14.29	
	7.0	14.27	1.9	53.99	
	2.9	34.60	0.5	204.08	
Extra dilutions if needed	1.19	83.92	0.13	771.36	
	0.49	203.54	0.03	2915.45	

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Table 3
WETLim10.xls Spreadsheet

Spreadsheet for determination of WET test endpoints or WET limits									
Excel 97		Acute Endpoint/Permit Limit Use as LC ₅₀ in Special Condition, as TU _a on DMR							
Revision Date: 12/13/13									
File: WETLim10.xls (MIX.EXE required also)									
		ACUTE	100% =	NOAEC	LC ₅₀ =	NA	% Use as	NA	TU _a
		ACUTE WLA _a		1.455	Note: Inform the permittee that if the mean of the data exceeds this TU _a : 1.0 a limit may result using STATS.EXE				
		Chronic Endpoint/Permit Limit Use as NOEC in Special Condition, as TU _c on DMR							
		CHRONIC	7.97103203	TU _c	NOEC =	13	% Use as	7.69	TU _c
		BOTH*	14.5500004	TU _c	NOEC =	7	% Use as	14.28	TU _c
		AML	7.97103203	TU _c	NOEC =	13	% Use as	7.69	TU _c
Enter data in the cells with blue type:									
Entry Date:	11/13/14	ACUTE WLA _{a,c}		14.55	Note: Inform the permittee that if the mean of the data exceeds this TU _c : 3.27565313				
Facility Name:	Lexington Rockbridge	CHRONIC WLA _c		5.45					
VPDES Number:	VA0088161	* Both means acute expressed as chronic							
Outfall Number:	001								
		% Flow to be used from MIX.EXE				Diffuser /modeling study?			
Plant Flow:	6 MGD					Enter Y/N			
Acute 1Q10:	23.1 MGD	100 %				Acute 1 :1			
Chronic 7Q10:	26.7 MGD	100 %				Chronic 1 :1			
Are data available to calculate CV? (Y/N)		N		(Minimum of 10 data points, same species, needed)				Go to Page 2	
Are data available to calculate ACR? (Y/N)		N		(NOEC<LC50, do not use greater/less than data)				Go to Page 3	
IWC _a	20.6185567 %	Plant flow/plant flow + 1Q10		NOTE: If the IWC _a is >33%, specify the NOAEC = 100% test/endpoint for use					
IWC _c	18.34862385 %	Plant flow/plant flow + 7Q10							
Dilution, acute	4.85	100/IWC _a							
Dilution, chronic	5.45	100/IWC _c							
WLA _a	1.455	Instream criterion (0.3 TU _a) X's Dilution, acute							
WLA _c	5.45	Instream criterion (1.0 TU _c) X's Dilution, chronic							
WLA _{a,c}	14.55	ACR X's WLA _a - converts acute WLA to chronic units							
ACR -acute/chronic ratio	10	LC50/NOEC (Default is 10 - if data are available, use tables Page 3)							
CV-Coefficient of variation	0.6	Default of 0.6 - if data are available, use tables Page 2)							
Constants	eA	0.4109447	Default = 0.41						
	eB	0.6010373	Default = 0.60						
	eC	2.4334175	Default = 2.43						
	eD	2.4334175	Default = 2.43 (1 samp)						
		No. of samples:	1	**The Maximum Daily Limit is calculated from the lowest LTA, X's eC. The LTA _{a,c} and MDL using it are driven by the ACR.					
LTA _{a,c}	5.979245385	WLA _{a,c} X's eA							
LTA _c	3.275653285	WLA _c X's eB							
MDL** with LTA _{a,c}	14.55000036	TU _c	NOEC =	6.872852	(Protects from acute/chronic toxicity)		NOEC =	7 %	
MDL** with LTA _c	7.971032028	TU _c	NOEC =	12.545427	(Protects from chronic toxicity)		NOEC =	13 %	
AML with lowest LTA	7.971032028	TU _c	NOEC =	12.545427	Lowest LTA X's eD		NOEC =	13 %	
IF ONLY ACUTE ENDPOINT/LIMIT IS NEEDED, CONVERT MDL FROM TU _c to TU _a									
MDL with LTA _{a,c}	1.455000036	TU _a	LC50 =	68.728521	%		LC50 =	69 %	
MDL with LTA _c	0.797103203	TU _a	LC50 =	125.454269	%		LC50 =	NA	
CHRONIC DILUTION SERIES TO RECOMMEND									
		Monitoring		Limit					
		% Effluent		TU _c					
Dilution series based on data mean		31		3.275653					
Dilution series to use for limit				13		7.69			
Dilution factor to recommend:		0.556776436		0.360555128					
Dilution series to recommend:		100.0		1.00		100.0 1.00			
		55.7		1.80		36.1 2.77			
		31.0		3.23		13.0 7.69			
		17.3		5.79		4.7 21.33			
		9.6		10.41		1.7 59.17			
Extra dilutions if needed		5.35		18.69		0.61 164.11			
		2.98		33.57		0.22 455.17			

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Table 4
Stat.exe Results

<p>Chemical = WET Chronic Cd 3.0 MGD Chronic averaging period = 4 WLAa,c = 26.1 WLAc = 9.9 Q.L. = 1 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics:</p> <p># observations = 5 Expected Value = 1 Variance = .36 C.V. = 0.6 97th percentile daily values = 2.43341 97th percentile 4 day average = 1.66379 97th percentile 30 day average= 1.20605 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 1,1,1,1,1</p>	<p>Chemical = WET Chronic Pp 3.0 MGD Chronic averaging period = 4 WLAa,c = 26.1 WLAc = 9.9 Q.L. = 1 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics:</p> <p># observations = 5 Expected Value = 1.976 Variance = 1.40564 C.V. = 0.6 97th percentile daily values = 4.80843 97th percentile 4 day average = 3.28764 97th percentile 30 day average= 2.38316 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 1,1,1,5.88, 1</p>
<p>Chemical = Midpoint Check 3.0 MGD Chronic averaging period = 4 WLAa,c = 26.1 WLAc = 9.9 Q.L. = 1 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics:</p> <p># observations = 1 Expected Value = 5.88 Variance = 12.4467 C.V. = 0.6 97th percentile daily values = 14.3084 97th percentile 4 day average = 9.78308 97th percentile 30 day average= 7.09159 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 5.88</p>	<p>Chemical = Midpoint Check 6.0 MGD Chronic averaging period = 4 WLAa = 14.55 WLAc = 5.45 Q.L. = 1 # samples/mo. = 1 # samples/wk. = 1</p> <p>Summary of Statistics:</p> <p># observations = 1 Expected Value = 3.23 Variance = 3.75584 C.V. = 0.6 97th percentile daily values = 7.85993 97th percentile 4 day average = 5.37404 97th percentile 30 day average= 3.89555 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data</p> <p>No Limit is required for this material</p> <p>The data are: 3.23</p>

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APPENDIX C

BIOSOLIDS LIMITATIONS AND MONITORING REQUIREMENTS

Principal sludge management facilities at Lexington-Rockbridge Regional WQCF consist of aerobic digestion, gravity belt thickening, and storage of thickened biosolids. The Maury Service Authority originally began land applying biosolids in September 1985. The applicant proposes to add 4 sites consisting of 19 fields with a total of 290.9 acres at this reissuance. The applicant is also removing 433 acres of previously permitted land at this reissuance. With the proposed additions and deletions of land, there are a total of 36 fields with a total of 528.0 acres for the land application of biosolids. Permit limits and monitoring requirements are required for biosolids and land application fields based on the VPA Permit Regulation (9VAC25-32), the VPDES Permit Regulation (9VAC 25-31), and 40 CFR Part 503.

The facility's biosolids that are land applied must meet the following treatment standards:

- Class B pathogen reduction by one of the applicable reduction alternatives specified in 9VAC25-31-710.B.
- Vector attraction reduction by one of the applicable alternatives specified in 9VAC25-31-720.B.

Biosolids Quality:

Based on information on file at DEQ, the aerobically digested biosolids generated by this facility meets both Pollutant Concentration (PC) and Ceiling Concentration (CC) requirements.

Parameter	2014 Biosolids Concentration (mg/kg)	Ceiling Concentration (mg/kg)*	Pollutant Concentration (mg/kg)**
Arsenic	3.0	75	41
Cadmium	2.0	85	39
Copper	353	4300	1500
Lead	23	840	300
Mercury	<0.4	57	17
Molybdenum	5	75	---
Nickel	30	420	420
Selenium	<5.0	100	100
Zinc	640	7500	2800

*Maximum

**Monthly Average

In the case of an emergency, sludge can also be dewatered and hauled to the Rockbridge County Landfill or biosolids may be land applied by Houff's Feed & Fertilizer Company, Inc. under permit number VPA01581, VPA01566 or VPA01580.

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Metals Limitations & Monitoring

PARAMETER ⁽¹⁾	BASIS FOR LIMITS	LIMITATIONS		MONITORING REQUIREMENTS	
		Monthly Average (mg/kg) ⁽¹⁾⁽²⁾⁽³⁾	Maximum (mg/kg) ⁽¹⁾⁽²⁾⁽⁴⁾	Frequency ⁽⁵⁾	Sample Type
Arsenic	1	41	75	1/Year	Composite
Cadmium	1	39	85	1/Year	Composite
Copper	1	1,500	4,300	1/Year	Composite
Lead	1	300	840	1/Year	Composite
Mercury	1	17	57	1/Year	Composite
Molybdenum	1	NL ⁽⁶⁾	75	1/Year	Composite
Nickel	1	420	420	1/Year	Composite
Selenium	1	100	100	1/Year	Composite
Zinc	1	2,800	7,500	1/Year	Composite

NL = No Limit, monitoring required

1/3 Months = Sampling each calendar quarter with the results submitted by February 19th of each year

- (1) All parameters are subject to pollutant concentrations (PC), cumulative pollutant loading rates (CPLR), and ceiling limits. PC biosolids contain the constituents identified above at concentrations below the monthly average specified in Part IV.A.2. CPLR biosolids contain the constituents identified above at concentrations above the monthly average and each sample must be below the ceiling limitations specified in Part IV.A.2.
- (2) All limits and criteria are expressed on a dry weight basis.
- (3) Monthly average shall be reported as the average of the results of all samples collected within a calendar month and analyzed using an approved method, in accordance with Part II.A.1-2 of the permit. For monitoring periods which include multiple months, if one sample is collected during the monitoring period, that result shall be reported as the monthly average. If samples are collected in multiple months during the monitoring period, a monthly average shall be calculated for each month in which samples were collected during the monitoring period and the highest monthly average reported. Individual results and calculations shall be submitted with the report.
- (4) The maximum concentration shall be reported as the highest single result from all samples collected and analyzed during a monitoring period.
- (5) The monitoring frequency may be increased during this permit term if DEQ deems it necessary.
- (6) The monthly average concentration for molybdenum is currently under study by USEPA. Research suggests that a monthly average molybdenum concentration below 40 mg/kg may be appropriate to reduce the risk of copper deficiency in grazing animals.

Bases for Limitations

1. VPDES Permit Regulation (9VAC25-31)

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Pathogen Reduction Requirements

BASIS FOR LIMITS	PATHOGEN REDUCTION ALTERNATIVE	PROCESS TO SIGNIFICANTLY REDUCE PATHOGENS (PSRP) OPTION	CLASS B PATHOGEN REDUCTION TREATMENT STANDARDS	MONITORING REQUIREMENTS ⁽¹⁾
1,2	1	NA	Fecal coliform monitoring: <2,000,000 MPN/gm or <2,000,000 CFU/gm, geometric mean of 7 samples (9VAC25-32-675.B.2)	1/Year ⁽²⁾
1,2	2	1	PSRP: Aerobic Digestion: Sludge mean cell residence time from 40 days at 20°C to 60 days at 15°C (9VAC25-32-675.D.1)	(3)
1,2	2	2	PSRP: Air dry in a drying bed for three months. Ambient average daily temperature must be above 0°C for 2 of the 3 months (9VAC25-32-675.D.2)	(3)
1,2	2	3	PSRP: Anaerobic digestion for a mean cell residence time between 15 days at 35°C - 55°C up to 60 days at 20°C (9VAC25-32-675.D.3)	(3)
1,2	2	4	PSRP: Composting at 40°C or above for 5 or more days, maintaining > 55°C for 4 consecutive hours during the 5 days (9VAC25-32-675.D.4)	(3)
1,2	2	5	PSRP: Sufficient lime is added to the sewage sludge to raise the pH of the sewage sludge to 12 after two hours of contact (9VAC25-32-675.D.5)	(3)
1,2	3	PROCESS AS APPROVED	Process equivalent to PSRP: PROCESS AS APPROVED (9VAC25-32-675 B.4.)	(3)

NA = Not applicable

1/3 Months = Sampling each calendar quarter with the results submitted by February 19th of each year

- (1) The monitoring frequency may be increased during this permit term if DEQ deems it necessary.
- (2) Between sampling events, operating records must demonstrate that the treatment facility is operating at a performance level known to meet pathogen reduction standards.
- (3) Process monitoring must be sufficient to demonstrate compliance with PSRP treatment requirements.

Bases for Requirements

1. VPDES Permit Regulation (9VAC25-31-710)
2. Environmental Regulations and Technology - Control of Pathogens and Vector Attraction Reduction in Sewage Sludge (EPA/625/R-92/013)

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Vector Attraction Reduction (VAR) Requirements

BASIS FOR LIMITS	VAR OPTION	VAR TREATMENT STANDARD	MONITORING REQUIREMENTS ⁽¹⁾
1,2	1	38% Reduction of volatile solids by digestion (9VAC25-32-685.B.1)	1/Year ⁽²⁾⁽³⁾
1,2	2	When 38% reduction is not achieved by anaerobic digestion, 40 day bench study at temperatures between 30°C and 37°C to demonstrate further reduction of volatile solids <17% (9VAC25-32-685.B.2)	1/Year ⁽²⁾⁽³⁾
1,2	3	When 38% reduction is not achieved by aerobic digestion, 30 day bench study at 20°C to demonstrate further reduction of volatile solids <15% (9VAC25-32-685.B.3)	1/Year ⁽²⁾⁽³⁾
1,2	4	Specific Oxygen Uptake Rate of ≤ 1.5 mg O ₂ /hour/gram total solids at 20°C (aerobically processes sludge) (9VAC25-32-685.B.4)	1/Year ⁽²⁾⁽³⁾
1,2	5	14 day aerobic process, temperatures above 40°C with an average temperature of >45°C (9VAC25-32-685.B.5)	(3)
1,2	6	Sufficient alkali is added to the sewage sludge to raise the pH of the sewage sludge to 12 S.U. or higher, and without the addition of more alkali, maintain the pH at 12 S.U. for two hours and then at 11.5 S.U. or higher for an additional 22 hours (9VAC25-32-685.B.6)	(3)
1,2	7	Where biosolids do not contain unstabilized solids from primary wastewater treatment, the percent solids of the biosolids shall be ≥ 75% (9VAC25-32-685.B.7)	1/Year ⁽²⁾⁽³⁾
1,2	8	Where biosolids contain unstabilized solids from primary wastewater treatment, the percent solids of the biosolids shall be ≥ 90% (9VAC25-32-685.B.8)	1/Year ⁽²⁾⁽³⁾
1,2	9	Sewage Sludge shall be injected below the surface of the land (9VAC25-32-685.B.9)	NA ⁽⁴⁾
1,2	10	Sewage sludge land applied shall be incorporated into the soil within 6 hours after application (9VAC25-32-685.B.10)	NA ⁽⁴⁾

NA = Not applicable

1/3 Months = Sampling each calendar quarter with the results submitted by February 19th of each year

- (1) The monitoring frequency may be increased during this permit term if DEQ deems it necessary.
- (2) Between sampling events, operating records must demonstrate that the treatment facility is operating at a performance level known to meet VAR standards.
- (3) Process monitoring must be sufficient to demonstrate compliance with VAR treatment requirements.
- (4) If the selected VAR option 1- 8 is not met, the permittee shall provide notification to the land applier at the time the biosolids are delivered that the biosolids did not meet VAR at the treatment facility and that the biosolids must be injected or incorporated. The permittee shall obtain verification from the land applier that injection or incorporation occurred.

Bases for Requirements

1. VPDES Permit Regulation (9VAC25-31-720)
2. Environmental Regulations and Technology - Control of Pathogens and Vector Attraction Reduction in Sewage Sludge (EPA/625/R-92/013)

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APPENDIX D

BASES FOR PERMIT SPECIAL CONDITIONS

Tabulated below are the sections of the permit, with any changes and the reasons for the changes identified. Also provided is the basis for each of the permit special conditions.

Cover Page	<ul style="list-style-type: none">• Content and format as prescribed by the Guidance Memo No. 14-2003.
Part I.A.1	<p>Effluent Limitations and Monitoring Requirements: Bases for effluent limits are provided in previous pages of this fact sheet. Monitoring requirements are as prescribed by Guidance Memo No. 14-2003.</p> <p><i>Updates Part I.A.2. of the previous permit with the following:</i></p> <ul style="list-style-type: none">• Minor changes were made to the format and introductory language.• Less stringent Ammonia-N limits were included.• Nitrate + Nitrite, TKN, TN, and TP monitoring were removed since they are reported under the permittee's VPDES GP coverage.• Footnotes were updated to reflect current DEQ guidance and changes in the reissued permit.
Part I.A.2	<p>Effluent Limitations and Monitoring Requirements: Bases for effluent limits are provided in previous pages of this fact sheet. Monitoring requirements are as prescribed by Guidance Memo No. 14-2003.</p> <p><i>Updates Part I.A.3. of the previous permit with the following:</i></p> <ul style="list-style-type: none">• Minor changes were made to the format and introductory language.• The monitoring frequencies for BOD₅ and Ammonia-N were increased from 1/Week to 5/Week.• The monitoring frequency for E. coli was increased from 3/Week to 1/Day.• Less stringent Ammonia-N limits were included.• Nitrate + Nitrite, TKN, TN, and TP monitoring were removed since they are reported under the permittee's VPDES GP coverage.• Footnotes were updated to reflect current DEQ guidance and changes in the reissued permit.
Part I.B	<p>Total Residual Chlorine (TRC) Effluent Limitations and Monitoring Requirements: <i>Updates Part I.B. of the previous permit. More stringent TRC limits were included. The monitoring frequency for E. coli was changed from 2/Month to 4/Month in any month of each calendar quarter.</i> Specifies both disinfection and effluent limits and monitoring requirements should the permittee elect to switch from alternate disinfection to chlorine disinfection. Required by Sewage Collection and Treatment (SCAT) Regulations and 9VAC25-260-170, Bacteria; other waters. Also, 40 CFR 122.41(e) requires the permittee, at all times, to properly operate and maintain all facilities and systems of treatment in order to comply with the permit. This ensures proper operation of chlorination equipment to maintain adequate disinfection.</p>
Part I.C	<p>Effluent Limitations and Monitoring Requirements – Additional Instructions: <i>Updates Part I.C of the previous permit. The QL for BOD₅ was changed from 5 mg/L to 2 mg/L along with other wording changes.</i> Authorized by VPDES Permit Regulation 9 VAC25-31-190 J.4 and 220.I. This condition is necessary when pollutants are monitored by the permittee and a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values</p>

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Part I.D	Pretreatment Program Requirements: <i>Updates Part I.D of the previous permit with minor wording changes.</i> VPDES Permit Regulation 9VAC25-31-730 through 900, and 40 CFR Part 403 require certain existing and new sources of pollution to meet specified regulations.
Part I.E	Whole Effluent Toxicity (WET) Requirements: <i>Updates Part I.E of the previous permit with the removal of requirements for the previous 3.0 MGD facility along with other wording changes.</i> VPDES Permit Regulation 9VAC25-31-210 and 220.I, requires monitoring in the permit to assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act. Monitoring requirements are as prescribed by Guidance Memo No. 00-2012.
Part I.F.1	95% Capacity Reopener: <i>Updates Part I.F.1 of the previous permit with minor wording changes.</i> Required by VPDES Permit Regulation 9VAC25-31-200.B.4 for Publicly Owned Treatment Works (POTW) and Privately Owned Treatment Works (PVOTW) permits.
Part I.F.2	Indirect Dischargers: <i>Identical to Part I.F.2 of the previous permit.</i> Required by VPDES Permit Regulation, 9VAC25-31-200.B.1 for all STPs that receive waste from someone other than the owner of the treatment works.
Part I.F.3	Materials Handling/Storage: <i>Updates Part I.F.3 of the previous permit with minor wording changes.</i> 9VAC25-31-280.B.2 requires that the types and quantities of “wastes, fluids, or pollutants which are ... treated, stored, etc.” be addressed for all permitted facilities.
Part I.F.4	O&M Manual Requirement: <i>Updates Part I.F.4 of the previous permit with changes to what is required to be included in the O&M Manual.</i> Required by Code of Virginia 62.1-44.19, SCAT Regulations 9VAC25-790, and VPDES Permit Regulation 9VAC25-31-190.E for all STPs.
Part I.F.5	CTC/CTO Requirement: <i>Identical to Part I.F.5 of the previous permit.</i> Required by Code of Virginia 62.1-44.19, SCAT Regulations 9VAC25-790, and VPDES Permit Regulation 9VAC25-31-190.E for all STPs.
Part I.F.6	Licensed Operator Requirement: <i>Updates Part I.F.6 of the previous permit with minor wording changes.</i> The VPDES Permit Regulation 9VAC25-31-200.C, the Code of Virginia 54.1-2300 et seq., and Rules and Regulations for Waterworks and Wastewater Works Operators 18VAC160-20-10 et seq., require licensure of operators.
Part I.F.7	Reliability Class: <i>Identical to Part I.F.7 of the previous permit.</i> Required by SCAT Regulations 9VAC25-790.
Part I.F.8	Water Quality Criteria Monitoring: <i>Updates Part I.F.8 of the previous permit with the removal of requirements for the 3.0 MGD facilities along with other wording changes.</i> State Water Control Law Section 62.1-44.21 authorizes the Board to request information needed to determine the discharge’s impact on State waters. States are required to review data on discharges to identify actual or potential toxicity problems, or the attainment of water quality goals, according to 40 CFR Part 131, Water Quality Standards, Subpart 131.11. To ensure that water quality standards are maintained, the permittee is required to analyze the facility’s effluent for the substances noted in Attachment A of this VPDES permit.
Part I.F.9	Treatment Works Closure Plan: <i>Updates Part I.F.9 of the previous permit with minor wording changes.</i> Required for all STPs per the State Water Control Law at 62.1-44.18.C. and 62.1-44.15:1.1., and the SCAT Regulations at 9VAC25-790-450.E. and 9VAC25-790-120.E.3.

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- Part I.F.10 **Reopeners:**
a. *Identical to Part I.F.10.a of the previous permit:* Section 303(d) of the Clean Water Act requires that total maximum daily loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The reopener recognizes that, according to section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under section 303 of the Act.
b. *Identical to Part I.F.10.b of the previous permit:* 9VAC25-40-70.A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade.
c. *New Requirement:* 9VAC25-31-390.A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.
- Part I.F.11 **Suspension of concentration limits for E3/E4 facilities:** *Updates Part I.F.11 of the previous permit with minor wording changes.* 9VAC25-40-70.B authorizes DEQ to approve an alternate compliance method to the technology-based effluent concentration limitations as required by subsection A of this section. Such alternate compliance method shall be incorporated into the permit of an Exemplary Environmental Enterprise (E3) facility or an Extraordinary Environmental Enterprise (E4) facility to allow the suspension of applicable technology-based effluent concentration limitations during the period the E3 or E4 facility has a fully implemented environmental management system that includes operation of installed nutrient removal technologies at the treatment efficiency levels for which they were designed.
- Part I.F.12 **Effluent Monitoring Frequencies:** *New Requirement.* In accordance with Guidance Memo No. 14-2003, a reduction in monitoring frequency has been granted based on a history of permit compliance. To remain eligible for the reduction, the permittee should not have violations related to the effluent limits for which reduced frequencies were granted. If the permittee fails to maintain the previous level of performance, the baseline monitoring frequencies should be reinstated for those parameters that were previously granted a monitoring frequency reduction.
- Part I.F.13 **Stormwater Management:** *Updates Part I.F.12 of the previous permit with minor wording changes.* VPDES Permit Regulation 9VAC25-31-10 defines discharges of stormwater from municipal treatment plants with design flow of 1.0 MGD or more, or plants with approved pretreatment programs, as discharges of storm water associated with industrial activity. 9VAC25-31-120 requires a permit for these discharges.
- Part II **Conditions Applicable to All VPDES permits:** *Updates Part II of the previous permit.* VPDES Permit Regulation 9VAC25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.
- Part III.A.1.a **Annual Production Monitoring:** *New requirement.* 9VAC25-31.220.I.4 specifies that each permit shall include monitoring requirements for sewage sludge to assure compliance with permit limits.

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- Part III.A.1.b **Metals Limitations:** Bases for limits and monitoring requirements provided in Appendix B of this fact sheet.
Updates Part I.A.4 of the previous permit with the following:
- Changes were made to the format and introductory language.
 - The metal parameters have been revised to remove “Total” from the parameter name.
 - Requirements for monitoring and reporting Percent Solids, Volatile Solids, TKN, Ammonium Nitrogen, Nitrate Nitrogen, Total P, Total K, pH, and CCE were removed.
 - The footnotes were revised to reflect the changes mentioned above and also to reflect format changes in the special conditions pages of the permit.
- Part III.A.1.c **Site Specific Metals Loading Limitations:** Bases for limits and monitoring requirements provided in Appendix B of this fact sheet.
Updates Part I.A.5 and Part I.H.23 of the previous permit with the following:
- Changes were made to the format and introductory language.
 - The metal parameters have been revised to remove “Total” from the parameter name.
 - Requirements for reporting Aluminum were included.
 - The footnotes were revised to reflect the changes mentioned above and also to reflect format changes in the special conditions pages of the permit.
- Part III.A.1.d **Pathogen Reduction Requirements:** *Expands on footnote g in Part I.A.4 of the previous permit.* Bases for requirements provided in previous pages of this fact sheet.
- Part III.A.1.e **VAR Requirements:** *Expands on footnote h in Part I.A.4 of the previous permit.* Bases for requirements provided in previous pages of this fact sheet.
- Part III.A.1.f **Biosolids Characteristics:** Bases for limits and monitoring requirements provided in Appendix B of this fact sheet.
Updates Part I.4 of the previous permit with the following:
- Changes were made to the format and introductory language.
 - Requirements for monitoring and reporting Alkalinity as CaCO₃ (If lime by weight is less than 10%) were included.
 - Requirements for monitoring and reporting for CCE as CaCO₃ were revised to only be required if lime by weight is 10% or more.
 - The footnotes were revised to reflect the changes mentioned above and also to reflect format changes in the special conditions pages of the permit.
- Part III.A.1.g **Biosolids Nutrient Concentrations, Application Rates, and Loadings:** *New Requirement.* Bases for limits and monitoring requirements provided in Appendix B of this fact sheet
- Part III.A.2 **Soil:** Bases for limits and monitoring requirements provided in Appendix B of this fact sheet.
Updates Part I.6 of the previous permit with the following:
- Changes were made to the format and introductory language.
 - Requirements for monitoring and reporting Exchangeable Calcium, Zinc, and Manganese were included.
 - The footnotes were revised to reflect the changes mentioned above and also to reflect format changes in the special conditions pages of the permit.
- Part III.B.1 **Monitoring Report:** *Updates Part I.G.1 of the previous permit with changes including the requirement to include at attestation statement.* 9VAC25-31-590.B and the Fee Regulation 9VAC25-20-147.B require submittal of a report by the 15th of the month following the month in which land application occurred.

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- Part III.B.1.a **Biosolids Monitoring Data:** *Updates Part I.G.1 of the previous permit.* 9VAC25-31-220-I.3 requires reporting of monitoring to assure compliance with the permit limits shall be no less frequent than as required by the regulation. 9VAC25-31-190.L.4 requires monitoring results be reported at the intervals specified in the permit on a Discharge Monitoring Report (DMR) or forms provided or specified by the department for reporting results of monitoring of sludge use or disposal practices. 9VAC25-31-220.I.4.a. states monitoring requirements may include mass (or other measurements specified in the permit) for each pollutant limited in the permit.
- Part III.B.1.b **Pathogen Reduction and Vector Attraction Reduction:** *Updates Part I.A.4 footnotes g and h of the previous permit.* 9VAC25-31-220-I.3 requires reporting of monitoring to assure compliance with the permit limits shall be no less frequent than as required by the regulation. 9VAC25-31-190.L.4 requires monitoring results be reported at the intervals specified in the permit on a DMR or forms provided or specified by the department for reporting results of monitoring of sludge use or disposal practices. 9VAC25-31-220.I.4.a. states monitoring requirements may include mass (or other measurements specified in the permit) for each pollutant limited in the permit.
- Part III.B.1.c **Monthly Land Application Activity:** *Updates Part I.G.2 with changes to what is required to be included in the monthly report.* 9VAC25-31-590.B and 9VAC25-20-147.B require submittal of a report by the 15th of the month following the month in which land application occurred. Specific information to be provided is identified in 9VAC25-20-147.A. and B. 9VAC25-31-590.C refers to maintaining a report and adequate records on biosolids application rates, and methods of application for each site.
- Part III.B.1.d **Electronic Submittal Attestation Statement:** *New Requirement.* §59.1-479 – 498, the Uniform Electronic Transactions Act provides for submission of paperwork electronically and the use of electronic signatures. No laws or regulations require hard copy submittal of original signatures in the biosolids program. 9VAC25-31-590.B. requires electronic or postmarked submittals.
- Part III.B.2 **Biosolids Land Application Fee:** *Updates Part I.G.3 of the previous permit with slight wording changes.* §62.1-44.19.3.P requires that a fee be charged to the generator of biosolids to be land applied in Virginia. The fee of \$7.50/dry ton of Class B biosolids land applied in the Commonwealth of Virginia is established by 9VAC25-20-146 and 9VAC25-20-40.A.3. Exemptions to the fee are provided in 9VAC25-20-50.C. 9VAC 20-60.D establishes the due date.
- Part III.B.3 **Annual Report:** *Updates Part I.G.4 with changes to what is required to be included in the annual report.* 9VAC25-31-590.A requires the submittal of an annual report postmarked by February 19 for the previous year. 9VAC25-31-220.I.3 provides for the VPDES permit to require monitoring the volume of biosolids and other measurements as appropriate. 9VAC25-31-590.C requires reports be maintained verifying that sludge treatment for pathogen and vector attraction reduction be maintained by the generator and owner (of the permit). 9VAC25-31-190.H requires the permittee to submit information requested by the board, within a reasonable time, to determine compliance with the permit. Other specific information and maintenance requirements are identified in 9VAC25-20-147.A.
- Part III.C.1 **Records Retention:** *Updates Part I.G.5 of the previous permit with additional details on what records are to be maintained.* 9VAC25-31-580 requires permittees who prepare sewage sludge to develop records as well as retain those records for a minimum of five (5) years.

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- Part III.C.2 **Class B/PC Biosolids Record Keeping:** *Updates Part I.H.26 of the previous permit.* 9VAC25-31-580 outlines record keeping requirements for Class B/PC biosolids.
- Part III.C.3 **Class B/CPLR Biosolids Record Keeping:** *Updates Part I.H.27 of the previous permit.* 9VAC25-31-580.A.5 outlines record keeping requirements for Class B/CPLR biosolids.
- Part III.D.1 **Biosolids Management Plan (BSMP):** *Updates Part I.H.8 of the previous permit with changes to what is required to be included in the BSMP.* 9VAC25-31-485.G requires the permit holder to maintain and implement a BSMP and specifies its components. In addition to all materials submitted with permit application, this includes an Odor Control Plan (OCP), a Nutrient Management Plan (NMP) and O&M Manual.
- Part III.D.2 **Nutrient Management Plan (NMP) Requirement:** *Updates Part I.H.2 of the previous permit.* § 62.1-44.19.3.C.8 requires that a NMP be developed by a person certified in accordance with § 10.1-104.2 for each biosolids land application site, prior to application of biosolids at the site. The statute also establishes conditions where the NMP must be approved by the Department of Conservation and Recreation prior to submittal at the time of permit application. 9VAC25-31-505.A.1.e states that if conditions at the site change so that it meets one or more special conditions, the NMP will be approved prior to application at the site. 9VAC25-31-505.A.3., with which all biosolids operations must comply, requires that the NMP be submitted to the farmer/operator of the site, the Department of Conservation and Recreation, and the local government, unless requested in writing to not receive the NMP. 9VAC25-31-505.A.4, Table 1 requires the NMP to be approved by DCR prior to application based on soil phosphorus levels (Mehlich I).
- Part III.D.3 **Odor Control Plan (OCP) Requirement:** *New Requirement.* 9VAC25-31-100.Q.6 requires Generator's OCP and minimum content.
- Part III.E.1 **100 Day Notification:** *Updates Part I.H.6 of the previous permit.* 9VAC25-31-485.D.1 requires written notification to the chief executive officer (CEO) or designee for the locality 100 days prior to the initial land application at a specific site and clarifies that the notice may be satisfied by DEQ's notice of the permit application, if necessary site information was provided in that notification.
- Part III.E.2 **14 Day Notification:** *Updates Part I.H.4 of the previous permit.* § 62.1-44.19.3.L. and 9VAC25-31-485.D.2 requires written notification to the department and the CEO or designee for the locality at least 14 days prior to land application at a specific site.
- Part III.E.3 **Sign Posting:** *Updates Part I.H.5 of the previous permit.* 9VAC25-31-485.F.1 requires a sign be posted at a land application site at least 5 business days prior to delivery of biosolids at the site and maintained on site until 5 business days after application is complete; the sign will not be removed until 30 days after land application is complete. 9VAC25-31-485.F.1.a – b. addresses placement of the signs. 9VAC25-31-485.F.3– 4 specifies construction, content, and maintenance of the sign.
- Part III.E.4 **Notification of Sign Posting:** *New Requirement.* 9VAC25-31-485.F.2 requires written notification to DEQ and the CEO or designee for the locality within 24 hours of posting, identifying where the signs have been posted, and identifies information required in the notice.
- Part III.E.5 **24 Hour Notification:** *New Requirement.* 9VAC25-31-485.D.3 requires written notice to DEQ and the CEO or designee for the locality no more than 24 hours prior to commencing activity at a site, including delivery. Include the source of material and only sites where land application activities or staging will commence within 24 hours.

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- Part III.E.6 **Site Operator Notification and Information:** *New Requirement.* VPDES Permit Regulation 9VAC25-31-530.H states, “The person who applies bulk biosolids to the land shall provide the owner or lease holder of the land on which the bulk biosolids is applied notice and necessary information to comply with the requirements in this article.”
- Part III.E.7 **Handling of Complaints:** *New Requirement.* VPDES Permit Regulation 9VAC25-31-485.H requires the permittee to respond within 24 hours of receiving a complaint related to the land application of biosolids, and provide notification of the complaint to DEQ, the local government where the complaint is based and the generator(s) of the biosolids involved.
- Part III.E.8 **Generator NANI:** *New Requirement.* 9VAC25-31-530.F requires the generator of biosolids who provides biosolids to a land applier, to give notice and necessary information to the land applier. 9VAC25-31-480 states that the preparer of biosolids shall ensure that the applicable requirements in 9VAC25-31 Part VI are met when biosolids are land applied.
- Part III.F.1 – 5 **TRANSPORT Requirements:** *Update Part I.H.17 of the previous permit.* 9VAC25-32-540.A. – E. identifies requirements for transport routes, vehicles, prevention of drag-out and track-out, clean-up of such drag-out and track-out and clean-up and reporting of spills.
- Part III.G.1 – 11 **STAGING:** *New Requirements.* 9VAC25-32-545.A. – B define staging and provides procedural requirements for staging up to 7 days and daily inspections by certified land applier; procedural and notification requirements to be implemented if biosolids cannot be applied by the end of the 7th day; and prohibits overnight staging in areas of Karst, areas identified by U.S. Department of Agriculture - Natural Resources Conservation Service (USDA-NRCS) as frequently flooded, and sites with on-site storage.
- Part III.H.1 – 3 **ON-SITE STORAGE Requirements:** *Updates Part I.I of the previous permit.* 9VAC25-32-550.D.1, 3 – 10 describe on-site storage and provides procedural requirements for staging up to 45 days, routine inspections by certified land applier; procedural and notification requirements; 9VAC25-32-550.D specifies on-site storage shall take place on a constructed surface at a location preapproved by DEQ and that biosolids stored on the site shall be land applied only at sites under control of the owner/operator of the site where the on-site storage is located; 9VAC25-32-550.C and D.2 and 6 specify permeability requirements for the pad and requires existing storage facilities to come into compliance with the amended regulation by 9/1/2014.
- Part III.I.1 **Infrequent Application:** *Updates Part I.H.10 of the previous permit.* 9VAC25-32-560.B.3.c establishes infrequent application based on total crop needs for nitrogen.
- Part III.I.2 **Depth to Bedrock or Restrictive Layers:** *Updates Part I.H.22 of the previous permit.* 9VAC25-32-560.B.2.a states depth to bedrock or restrictive layers shall be a minimum of 18 inches.
- Part III.I.3 **Depth to Groundwater:** *Updates Part I.H.21 of the previous permit.* 9VAC25-32-560.B.2.b prohibits land application when seasonal high water table is within 18” of ground surface and requires use of USDA-NRCS soil survey maps and soil borings to verify groundwater depth.
- Part III.I.4 **pH Management:** *Updates Part I.H.18 of the previous permit.* 9VAC25-32-560.B.2.c requires the biosolids soil mixture have a pH of 6>0 S.U. or higher where cadmium in the biosolids is ≥ 21 mg/kg. 9VAC25-32-560.B.2.c and d require the addition of lime or use of lime amended biosolids if soil pH is < 5.5 S.U.

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- Part III.I.5 **Soil Potassium < 38 ppm:** *New Requirement.* 9VAC25-32-560.B.2.e requires addition of potash prior to or concurrently with the biosolids if the soil potassium (Mehlich I) is < 38 ppm.
- Part III.I.6 **Equipment Calibration:** *New Requirement.* 9VAC25-32-560.B.3.d.(1) requires routine measurement of the field application rate of application equipment.
- Part III.I.7 **Liquid Biosolids:** *Updates Part I.H.12 of the previous permit.* 9VAC25-32-560.B.3.d.(1) limits application of liquid biosolids to 14,000 gallons per acre, per application with drying time between applications.
- Part III.I.8 **Grass Height:** *New Requirement.* 9VAC25-32-560.B.3.d.(1) requires hay and pasture to be grazed or clipped to approximately 6 inches prior to biosolids application.
- Part III.I.9 **Uniform Application:** *New Requirement.* 9VAC25-32-560.B.3.d.(1) requires a uniform application of biosolids on a field. If application is not uniform additional operational methods are required followed by clipping.
- Part III.I.10 **Odor Control by Incorporation:** *New Requirement.* 9VAC25-32-560.B.3.d.(2) allows DEQ or the local monitor to require incorporation, when practical or compatible with a soil conservation plan, to mitigate malodor.
- Part III.I.11 **Slope Restrictions:** *Updates Part I.H.15 of the previous permit.* 9VAC25-32-560.B.3.d.(3) prohibits application on slopes >15%, but allows the restriction to be waived by DEQ for the establishment and maintenance of perennial vegetation or based on BMPs.
- Part III.I.12 **Snow Covered Ground:** *Updates Part I.H.13 of the previous permit.* 9VAC25-32-560.B.3.d.(5) allows land application of biosolids on snow cover that is 1 inch or less in depth and the snow and biosolids are incorporated within 24 hours. If the snow melts with application, incorporation is not required.
- Part III.I.13 **Setbacks:** *Updates Part I.H.16 of the previous permit.* 9VAC25-32-560.B.3.e.(1) – (4) establishes setback distances and procedures for extending or waiving residential and property line setbacks.
- Part III.I.14 **Site Access Restrictions:** *Updates Part I.H.20 of the previous permit.* 9VAC25-32-675.B.5 establishes access restrictions for sites where Class B biosolids have been land applied.
- Part III.I.15 **Forestland (Silviculture):** *New Requirement.* 9VAC25-32-560.C. establishes requirements for land application on silvicultural sites.
- Part III.I.16 **CPLR Biosolids:** *Updates Part I.H.24 of the previous permit.* VPDES Permit Regulation 9VAC25-31-530 establishes criteria for determining the need to track the metals loadings on individual sites where metals subject to the cumulative pollutant loading rates have been applied.
- Part III.J.1 **Biosolids Sources:** *New Requirement.* 9VAC25-31-440.D states that no person shall land apply, market or distribute biosolids in Virginia unless the biosolids source has been approved by the board.
- Part III.J.2 **Land Application Sites:** *Identical to Part I.H.1 of the previous permit.* 9VAC25-31-440.C states that no person shall land apply Class B biosolids on any land in Virginia unless that land has been identified in an application to issue, reissue or modify a permit and approved by the board.

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Part III.J.3	Pollution Liability and General Liability Requirement: <i>New Requirement.</i> 9VAC25-31-485.E requires the permit holder to provide evidence of financial responsibility in accordance with 9VAC25-32-770 et seq. 9VAC25-32-780 establishes liability requirements. 9VAC25-32-790 – 850 provides specific requirements for each type of liability demonstration.
Part III.J.4	Alteration of Biosolids Composition: <i>New Requirement.</i> 9VAC25-31-505.B.2 prohibits the alteration of the biosolids composition at the land application site.
Part III.J.5	Site Specific Application Rates: <i>Updates Part I.H.3 of the previous permit.</i> 9VAC25-32-560 states that site specific application rates shall not exceed the rates established in the NMP nor result in exceedances of the cumulative trace element loading rates specified in 9VAC25-32-356 Table 3.
Part III.J.6	Land Owner Consent Requirement: <i>Updates Part I.H.19 of the previous permit.</i> 9VAC25-31-100.F.6 requires the submission of landowner consent forms with the permit application. 9VAC25-31-485.B.2 requires the written agreement between the permittee and the landowner, specifies required information and use of the most current form approved by the board. 9VAC25-31-485.C requires the permittee to maintain the agreement. 9VAC25-31-485.B.4 requires the permittee to notify landowners with landowner agreements on old forms of the need to sign and submit new landowner agreements on the current form.
Part III.J.7	Threatened and Endangered Species Protection: <i>Updates Part I.H.9 of the previous permit.</i> 9VAC25-31-550.B states no one shall apply bulk biosolids to the land if it is likely to adversely affect a threatened or endangered species listed in 9VAC25-260-320 or § 4 of the Endangered Species Act (16 USC § 1533) or if the land application is likely to adversely affect its designated critical habitat.
Part III.J.8.	Certified Land Applicator Requirement: <i>Updates Part I.H.7 of the previous permit.</i> §62.1-44.19.3.1.B. states that Class B biosolids shall not be land applied unless a certified land applicator is onsite at all times during the application. 9VAC25-31-485.A prohibits land application of Class B biosolids unless a person certified as a Land Applicator in accordance with VPA Permit Regulation 9VAC25-32-690 - 760 is on site at all times during the land application. 9VAC25-32-690 requires the land applier to maintain a field log and identifies minimum requirements and sign monthly reports, attesting that they were onsite at all times reported.
Part III.J.9.	Reopener: <i>Updates Part I.J.1 of the previous permit.</i> 9VAC25-31-220.C requires inclusion of a reopener clause in the permit to authorize immediate modification of the permit to address changes to standards or requirements for the use or disposal of biosolids, industrial wastewater sludge, or septage.
Part III.J.10.	Storm Water Discharge Exception: <i>Identical to Part I.J.2 of the previous permit.</i> 9VAC25-32-30.A states that all pollutant management activities covered under a VPA permit shall maintain no point source discharge of pollutants to surface waters except in the case of a storm event greater than the 25-year, 24-hour storm.
Deletions:	<p>Part I.A.1 of the previous permit has been removed at this reissuance because the CTO for the upgraded 3.0 MGD facility has been issued.</p> <p>Part I.H.11 (Frequent Application Below Agronomic Rate), Part I.H.14 (Injection or Incorporation Requirement), Part I.H.25 (CPLR Biosolids Tracking), and Part I.H.28 (Reporting Land Application of Biosolids Upon Attaining 90% of CPLR) have been removed at this reissuance because the VPA and VPDES permit regulations no longer include these requirements.</p>